Illinois Medical Journal

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ANNUAL MEETING ILLINOIS STATE MEDICAL SOCIETY, SPRINGFIELD, MAY 19, 20, 21, 1942

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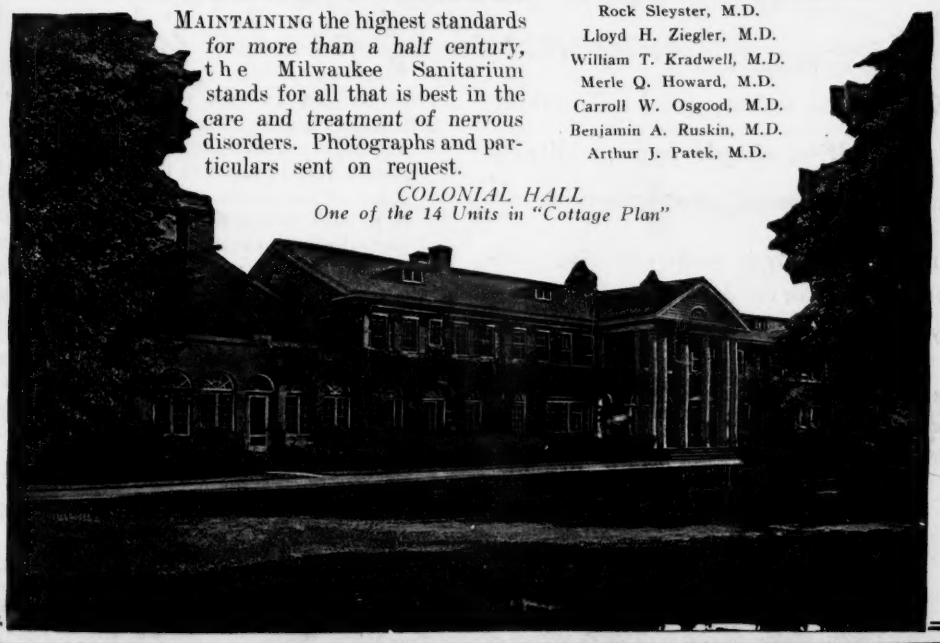

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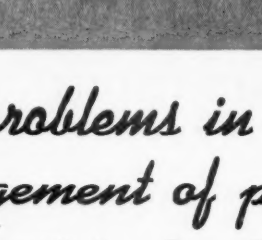

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The Illinois Medical Journal

December 1941

VOL. 80, NO. 6

Official Journal of the Illinois State Medical Society

EDITOR — Harold M. Camp. EDITORIAL BOARD — James H. Hutton, Chairman, Frederick H. Falls, Josiah J. Moore, Edwin M. Miller, Chauncey C. Maher, Harry S. Gradle, Philip H. Kreuscher, Harry Culver.

Editorials

THE PRESENT STATUS OF BLOOD PLASMA THERAPY

At the 1941 annual meeting of the American Medical Association in Cleveland, one of the most popular sections of the vast scientific exhibit hall was that portion allocated to the dissemination of knowledge pertaining to the preparation of blood plasma and its present day need. The more popular methods of drying plasma were shown, as well as the methods used in storing the finished product for subsequent use.

Some months ago an appeal was received in this country for plasma for Britain and large quantities of dried plasma were sent across the ocean for emergency services in the war zones.

The Surgeon General of the United States Army has recently advised the American Red Cross that 100,000 pints of plasma are needed by the Army to meet immediate needs. This need, General Magee said, is not a project to collect and store blood for future use in case of war. It was also stated that our Navy likewise needs 100,000 pints of plasma for immediate use.

In the event of war it is quite obvious that immense quantities of blood plasma would be needed. The American Red Cross is planning for a marked increase in their blood donor facilities; whereas blood donations are now being made in seven cities, the Red Cross in the immediate future, will have twenty-two local chapters engaged in this activity.

Up to this time, through the Red Cross there has been only one laboratory processing the donated blood, although it has been announced that arrangements have been made whereby seven laboratories will soon be used. The laboratories will do this processing on a non-payment basis as the Government pays only for the cost of the processing, and the Red Cross pays for the collection and transportation of blood to the processing laboratory.

An interesting story on the use of plasma was recently released, relative to the treatment of a sailor severely injured in the torpedoing of the U.S.S. Kearny. The blood plasma was transported by plane, dropped in the sea, recovered, resterilized and administered to the injured sailor who is now convalescing in an Iceland hospital. Blood plasma has likewise been used by the Army during the recent maneuvers in the south.

The use of preserved blood for transfusion dates back to the first World War, and was first reported in English literature in 1918. In 1936 following months of experimentation, the use of cadaver blood was reported in Russia, and it was stated that fewer reactions were experienced than when blood from living donors was used.

During recent years the establishing of blood banks in many hospitals has been increasingly popular, and the storage of blood for emergency use in such hospitals, has resulted in the saving of many lives. Naturally the delay in procuring suitable donors, matching and cross matching blood, serological tests, etc., was obviated through this immediate availability.

Plasma is essentially the liquid portion of the blood separated without clotting, while serum is the liquid portion remaining after clotting has taken place. Plasma is a liquid solution of three important proteins, albumin, globulin, and fibrinogen. The total protein content per 100 cc of blood is from 6.5 to 8.5 gms. The blood plasma used in emergency work may be of two types, the wet or the dry preparations. Although wet plasma can be transported some distance and be used over a much greater period of time than is the case in the use of blood bank preparations of citrated blood, dry plasma obtained by one of the several drying processes, may be used over an indefinite period by merely dissolving the dried plasma in distilled water. The wet plasma may be used as such or may be diluted with saline or glucose solutions.

Blood plasma is considered the ideal fluid for the maintenance of blood volume, for it has been conclusively shown that colloidal osmotic pressure is in no way dependent on the cellular content of the blood. Consequently in cases with sudden lowering of blood pressure, plasma seems to be the ideal preparation to be used in this emergency.

Each month new uses for blood plasma transfusions have been reported in medical literature. These uses range from immediate shock from any cause to secondary hemorrhage, extensive burns, various cardiac conditions, and severe hydration. Recent literature contains many instances in which blood plasma transfusions have been used in a number of types of blood dyscrasias where serious reactions have been experienced through the transfusion of whole or citrated blood, with most satisfactory results.

It is quite probable that within a short period of time, in every community physicians will be urged to assist the American Red Cross in collecting blood to be sent for processing to some designated laboratory. Many red blooded Americans will no doubt be willing to do their bit in acting as donors. Physicians will procure the desired blood from them, and then the processors will finish the job, and deliver the dried plasma to those Governmental Agencies to be used in the present emergency. In the event of war many hundreds of thousands of units will be desired, and no doubt will be made available within a reasonable time.

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State Society will pay no bills for legal services except those contracted by the Committee. Notify the Chairman at once. Do not employ attorneys.

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Subscription price of this JOURNAL to persons not members of the Illinois State Medical Society is $3.00 per year, in advance, postage prepaid, for the United States, Cuba, Porto Rico, Philippine Islands, Hawaiian Islands and Mexico. $4.00 per year for all foreign countries included in the postal union. Canada, $3.50. Single current copies, 50 cents.

The use of blood plasma for shock and for many other conditions is a valuable contribution of medical science and shows once more that the medical preparedness efforts are indeed along many lines.

CIVILIAN DEFENSE

Through the office of Civilian Defense the government is urging all communities to set up immediately, local Civilian Defense Units to be prepared in case of an emergency, to render all possible assistance to civilians who may be injured in any manner in the event of war.

Among the many important considerations is the development of local emergency medical service. Among the early duties of the medical profession in this work is the spreading of knowledge of first aid as widely as possible through competent instructors qualified by the American Red Cross. Physicians in every community should register with the local Red Cross Chapter as instructors, and should use the "Instructors Outline" for the standard 20 hour course as prepared by the American Red Cross in collaboration with the Medical Division of the Office of Civilian Defense and published by the American Red Cross. Upon completion of this course, participants will be entitled to receive the appropriate First Aid Certificate of the American Red Cross, and will be entitled to wear the insignia which has been developed for this purpose.

Another booklet entitled "Advanced First Aid for Civilian Defense" has been prepared by the Red Cross and the Medical Division which is intended for the use in instructing the medical and nursing personnel of emergency medical field units and for the training of Air Raid Wardens and members of other enrolled groups of the Civilian Defense Corps.

All physicians, and especially those who are members of Emergency Field Units should familiarize themselves with the first aid methods well outlined in this booklet. Those who are members of Emergency Field Units should register with the local Red Cross Chapter so that they can serve as instructors to both student and graduate nurses, as well as Nurses' Aides and other non-professional members of their Unit, and other hospital employees.

The Local Civilian Defense Corps is under the administrative authority of the local Director of Civilian Defense, and in each community there should be a local Chief of Emergency Medical Service, whose duties are:

1. To determine the scope of the activities of all official and voluntary organizations which are to participate in the emergency medical program of civilian defense, to integrate these organizations into comprehensive local programs, and to assist them in expanding activities to the limit of their resources in personnel and equipment.

2. To assist hospitals in the locality to organize, equip and train Emergency Medical Field Units as outlined in Medical Division Bulletin No. 1, "Emergency Medical Service for Civilian Defense."

3. To inspect and locate sites for the establishment of Casualty Stations.

4. To make a spot map of the locality, indicating the locations of hospitals, appropriate sites for Casualty Stations, depots for storage of stretchers, blankets, and collapsible cots, and the location of rescue squads. The map should indicate the number of Emergency Medical Squads in each hospital. Copies of the map should be supplied to Control Centers, Police and Fire Departments, Health Department, local Red Cross Chapter, State Defense Council, Regional Director, Regional Medical Officer, and to all cooperating hospitals.

5. To plan and establish adequate transportation service for casualties and medical personnel in consultation with local government departments, American Red Cross and voluntary agencies.

6. To arrange with the local Control Authority for field drills of Emergency Medical Units and Rescue Squads in collaboration with police and fire auxiliaries, disaster relief and canteen services of the Red Cross, ambulance transport service, and other civilian defense units, and to supervise such drills.

7. To make an inventory of hospital beds in the locality and of the possibilities for emergency expansion of the bed capacity.

8. To assist the authorities charged with preparing plans for evacuation in making an inventory of hospitals, convalescent homes, sanatoria, hotels and other structures within a radius of 50 to 100 miles which might be used as base

hospitals to which patients in city hospitals could be evacuated.

9. To assist the local Central Volunteer Bureau in establishing courses for volunteers in the field of health, medical care, nursing and related activities.

10. To stimulate recruitment of volunteers for Nurses' Aid Courses of the American Red Cross, assist the local Red Cross chapter in establishing Training Centers for volunteer Nurses' Aides at appropriate hospitals and assist the Red Cross placement bureau in placing Nurses' Aides in appropriate hospitals, clinics, health departments and field nursing services after completion of training.

11. To stimulate and guide extension of First Aid training courses as widely as possible among the local population through the American Red Cross and other official and volunteer agencies.

12. To stimulate and guide industrial plants, business establishments and government bureaus in the locality in the training and organization of effective First Aid Detachments among the employees.

13. To collaborate with state and local health departments and through them with the Regional Sanitary Engineer in a comprehensive program for the protection of the community against emergency sanitary hazards.

14. To collaborate with local and state Defense Councils, Office of Civilian Defense, Federal Security Agency, Children's Bureau and other local, state and federal authorities in the preparation of plans for evacuation, with particular attention to the medical needs of the population under such circumstances.

15. To keep the community and particularly the members of the health and medical professions, and the participating official and voluntary organizations informed of the plans and activities of the local Emergency Medical Services.

It is the desire of the Government through the Office of Civilian Defense, to be thoroughly prepared for any emergency in time of war; therefore, once more the medical profession is called upon to render service along the line of emergency service. The "Medical Preparedness" section of the Journal of the American Medical Association, under date of November 22, 1941, gives much information on the equipment and operation of Emergency Medical Field Units, including the desired equipment for a First Aid Post, and for a Casualty Station.

Volunteers are to be recruited in every community to carry out protection against military danger, and protection of the social structure of the community. It is urged that a Civilian Defense Volunteer Office be set up in every community as a community enterprise, established, operated and directed by citizens of the locality. They are requested to recruit men and women volunteers for civilian defense, to recommend them to local defense activities and to those community agencies in which their services are needed.

The American Red Cross is participating in these preparations, and will be ready in all communities to render every possible aid.

We heartily recommend that every physician in Illinois as well as throughout the nation, read regularly the articles appearing under the heading "Medical Preparedness" in each issue of the Journal of the American Medical Association.

"HISTORY OF MEDICAL PRACTICE IN ILLINOIS"

A few years ago, the Illinois State Medical Society published the History of Medical Practice in Illinois, with the late Lucius H. Zeuch as editor for the volume. Subscriptions were received prior to the publication of this book, at $10.00. It was soon learned that it would be impossible to put all available historical data in one volume, and the Society decided that eventually a second volume would be published, and there would be no additional cost to subscribers.

Soon after the first volume appeared, Dr. Zeuch died, and Dr. Charles J. Whalen, then editor of the Illinois Medical Journal was selected as editor for the proposed second volume. On account of unsatisfactory conditions, it was decided to hold the second volume in abeyance until some future date. Since the death of Dr. Whalen, it was deemed advisable to withhold further action on account of the present emergency.

The Society has on hand at this time, a number of copies of the first volume edited by Dr. Zeuch, which contains much valuable medical historical data, well illustrated, bound in cloth and in perfect condition, which may be procured

while the supply lasts, for $5.00. Physicians or libraries desiring to procure a copy of this unusual book, may send their remittance to the Secretary, and a copy will be forthcoming, post paid within a few days.

Address: Harold M. Camp, M.D., Secy.
Illinois State Medical Society,
Monmouth, Illinois.

PAPERS FOR THE 1942 ANNUAL MEETING

The 1942 annual meeting of the Illinois State Medical Society will be held in Springfield on May 19, 20, 21. Plans are now being made for the scientific programs to be presented before the individual sections and for the general meetings.

Physicians desiring to present papers at this meeting should communicate as early as possible with the officers of the section before which they desire to present a paper. Each section has a chairman and a secretary one residing in Cook County and the other down-state and it is advisable to keep this in mind when writing the section officers.

On account of the fact that the number of papers to be presented before each section will be limited, it is desirable that the best possible program be developed, and one which will appeal to the physicians as a whole rather than to a few members of individual specialties.

In writing to the proper section officer, it is advisable to give the title of the paper you desire to present, then give either an abstract of the paper on other information concerning it, so that the officers will be better able to judge the merits of the paper in considering the advisability of scheduling same on their respective programs.

The personnel of the several section officers is as follows:

Section on Medicine
F. Garm Norbury, Chairman, Jacksonville
M. Herbert Barker, Secretary, 700 N. Michigan Ave., Chicago

Section on Surgery
Loyal Davis, Chairman, 54 East Erie Street, Chicago
J. C. Thomas Rogers, Secretary, Urbana

Section on Eye, Ear, Nose and Throat
Clifton Turner, Chairman, Peoria
G. Henry Mundt, Secretary, 30 N. Michigan Ave., Chicago

Section on Public Health and Hygiene
Walter C. Earle, Chairman, Champaign
Henry C. Niblack, Secretary, 54 West Hubbard St., Chicago

Section on Radiology
E. E. Barth, Chairman, 303 East Superior St., Chicago
Cesare Gianturco, Secretary, Urbana

Section on Pediatrics
Craig D. Butler, Chairman, 715 Lake Street, Oak Park
A. J. Fletcher, Secretary, Danville

Section on Obstetrics and Gynecology
Milton E. Bitter, Chairman, Quincy
Clyde J. Geiger, Secretary, 4753 Broadway, Chicago

Owing to the fact that these section officers responsible for the preparation of the programs for each of the scientific sections are desirous of completing their list of speakers as soon as possible, it is advisable for all members of the State Medical Society to contact the proper section officer as early as possible in order that they may have the opportunity of getting you on the program for the 1942 annual meeting.

REPORT OF EDUCATIONAL COMMITTEE

June — November, 1941

CHICAGO HISTORICAL SOCIETY

Doctor John Nagel very thoughtfully obtained the 50 Year Button from the family of the late Doctor Arthur Brumback and a brief history of his life. The Button and biographical sketch have been accepted by the Chicago Historical Society as a part of their medical collection. It seems very appropriate that one of the 50 Year Buttons of the Illinois State Medical Society should be a part of the permanent exhibit of the Chicago Historical Society.

EXHIBITS

The Committee had an exhibit in connection with the Annual Meeting of the Illinois State Nurses Association at Urbana in October. About 1,000 nurses attended the Convention and most of them visited the booth of the Committee.

As a result of the exhibit 150 new names

were added to our mailing list to receive the "Do You Know" column.

SPEAKERS' BUREAU

90 — Physicians were scheduled to addres the following types of lay organizations: Rotary, High School assemblies and vocational guidance classes, Parent Teacher Associations, Church groups, Junior Women's Clubs, Women's Clubs, District federation meetings, Women's Auxiliaries to county medical societies, Premedic clubs, teachers' institutes, boys' clubs, business and professional women's clubs, Associations of University Women, Home Bureau, Kiwanis.

RADIO

50 — Radio talks were given over WJJD and WAAF. A special broadcast was arranged for the American Academy of Otolaryngology over station WGN.

Mrs. Carolyn Kehl, wife of Dr. S. C. Kehl of the Englewood Branch, has again volunteered to help us with our programs over WAAF. Her broadcasts with members of the Chicago Medical Society were begun on November 1st and will be presented every Saturday afternoon at 1:30. From the number of comments received by the office of the Committee, these programs are highly popular with our listening public.

Copies of radio programs are being sent to several downstate counties for use over local stations.

PACKAGE LIBRARIES

The package library service seems to fill a real need in the state and during the past three months special material has been prepared for doctors requesting help on the following topics:

- Socialized medicine
- Accidents and First Aid
- Amnesia
- Athlete's Foot
- Medical Legislation
- Progress of Medicine
- Health Fallacies
- Mental Hygiene
- History of Medicine
- Nutrition and Health
- Heart Disease
- Nervousness
- Cancer
- Development at Adolescence
- Infant Mortality

"LEAVE 'EM WHERE THEY LIE" Articles

Through the courtesy of the Texas State Medical Association the Committee was given permission to use their material on first aid in highway accidents. The Educational Committee, the Chicago Orthopedic Society and the State Highway Division went over the material before it was released.

80 — newspapers carried the articles weekly.

Letters were received from several safety engineers in large industrial companies asking for copies of the articles. A number of state medical societies also asked for permission to use the series in their own states. These latter requests were referred to the Texas State Medical Association.

"DO YOU KNOW" Column:

Articles written and approved on the following subjects:

- A Warm Month Disease
- Swimming for Fun
- Building Health on Vacations
- Ouch My Feet
- Going to School
- Burns Are Dangerous
- How Do You Sleep?
- Your Baby is an Individual
- Early Colds
- The March Is On
- Rheumatic Fever
- October Days
- Physical Therapy Today
- The Doctor & Selective Service
- Common Sense Diet
- Role of Medicine in National Defense

42,830 — Do You Know articles sent to lay list: health chairmen, farm advisers, home bureaus, nurses, libraries (No schools or teachers included in the summer mailings).

The mailing list has been brought up to date. Those on the mailing list were contacted and asked to send a card indicating if they wished to continue receiving the material. During the month of November 2,836 were listed. The comments are very interesting and in order to show how the material is used, some of them are herewith given:

District No. 5 W.P.A. — "We duplicate the bulletins on our duplicator and place them in the hands of the teachers in the Adult Education Division of the Education Project of the Works Project Administration."

Health Chairman P. T. A. "Please send me 250 copies each of your bulletins to distribute at our meetings every month."

Young Mothers Club — "We have enjoyed your health bulletins and would like to have 35 to 40 copies to pass out at our regular meetings."

Y.M.C.A. "If it is concurrent with your policy, will you please put on your bulletin mailing list the Directors of Health and Physical Education of all our Chicago Y.M.C.A.s"

School Nurse — "I would appreciate receiving these leaflets regularly for use on our health bulletin board."

H. S. Council Chairman — "Thank you so much for the packages of "Do You Know" sent for distribution at our District 25 Conference. The subjects were just what we need and were welcomed with much interest and enthusiasm as your literature always is."

Primary Teacher — "Please send me your bulletins "Safe at Home" and "How Is Their Vision" "Burns" and any other safety material helpful for teaching safety in primary grades."

County Nurse — "I would like my name put on your mailing list for the health bulletins on various health topics. I am planning to teach home nursing classes in the local high school and would appreciate this material to help me."

County Nurse — "I am writing to request special articles issued by the Illinois State Medical Society on communicable diseases or other pertinent subjects that may be reprinted in the local papers or used as basis for health talks to P.T.A. or Community meetings."

Civic Group — "I am chairman of the Health and Sanitation Committee of the North Side Civic Committee and would like to know if you will place me on the mailing list to receive the health articles and any other health education material released by the Educational Committee."

Oak Park High School — "Your publications under the heading of "Do You Know" which are sent periodically have come to our attention and are a matter of great interest. Any material available to high schools concerning health and applicable to our 2,000 girls would be greatly appreciated."

Gillespie, Illinois — "I am a teacher of Naturalization and Literary classes under W.P.A. I have used the "Do You Know" bulletins as lesson material in my classes. I would like to have extra copies to use as actual reading in some of my classes. If possible, send me 10 copies each month."

University of Illinois — Director of Physical Education receives 20 copies each mailing.

Teachers College — "Use 38 copies of each issue for senior college students in health education class.

Have requests from health teachers in New Brunswick, Canada; Indiana; Ohio, Louisiana, Minnesota, Washington, Kentucky, Michigan.

Farm Adviser — "I find your bulletins very helpful in my work."

Home Adviser — "We use many of the releases as a part of our regular study program."

Teacher Waller High School — "We read them in classes. We post some of them."

President Woman's Club — "These bulletins are read at each club meeting throughout the club year.

Colored High School — "May I please have 6 copies — one for each of our health teachers."

President Woman's Club — "I find that these bulletins are very helpful in Parent Teacher and Club work. They are splendid."

Northeast Junior College, Monroe, Louisiana — "I find this information very valuable. Thanks."

P.T.A. Council President — "I think these bulletins are marvelous.

Adviser — I have kept a year of these for future reference. They are fine."

Southern Illinois Normal Univ. Coach & Director Physical Education — "I certainly want to stay on your mailing list for I think the bulletins are very valuable."

The principal of a Chicago grade school is being furnished with stencils of our health articles which the students mimeograph and take home. There are about 1,000 children in this school.

A physician from South Rhodesia, South Africa asked to have copies of our material which he could mimeograph and give to the 500 students in his school.

AID TO COUNTY SOCIETIES

128 — Notices for Hancock County
223 — Notices for Henry
144 — Notices for Effingham
603 — Notices for LaSalle
71 — Notices for Stephenson County
75 — Notices for Knox County
46 — Notices for Randolph County
193 — Notices for Bureau County
100 — Notices for Perry County
120 — Notices for Franklin County
55 — Notices for DeKalb County
75 — Notices for Monroe County

PUBLICITY FOR MEDICAL MEETINGS

119 — Releases for LaSalle County
62 — Releases for Effingham County
22 — Releases for Warren County
29 — Releases for Knox County
39 — Releases for Henry County

22 — Releases for Stephenson
26 — Releases for Randolph
75 — Releases for Bureau
526 — Releases for Tri-County meeting
110 — Releases for Chicago Medical Society
4 — Releases for North Shore Branch
27 — Releases for Franklin
30 — Releases for Monroe
71 — Releases for 1st Dist. Post-Graduate Con.
79 — Releases for 5th Dist. Post-Graduate Con.
131 — Releases for 4th Dist. Post-Graduate Con.
88 — Releases for 8th Dist. Post-Graduate Con.
111 — Releases for 10th Dist. Post-Graduate Con.
84 — Releases for 7th Dist. Post-Graduate Con.
75 — Releases for 2nd Dist. Post-Graduate Con.
331 — Notices for Maternal Welfare Meeting — 9th & 10th Districts

NEWSPAPER SERVICE:

6,249 — Releases to newspapers using health columns furnished by the Educational Committee.

SCIENTIFIC SERVICE & POST-GRADUATE EDUCATION

During the summer a new list of speakers available for scientific meetings was prepared and printed and sent to presidents and secretaries of county medical societies. This is the most comprehensive list the Committee has assembled and many favorable comments have been received from other State Medical Societies and from the A. M. A.

During these months the Committee assisted with the following *112* scientific programs:

June 5 — Perry — Robert W. Bartlett — "Use of Pentothal Sodium — Clinical Application"

June 6 — Madison — J. J. Donahue — "Diseases of the Gastro-Intestinal Tract"

June 10 — McLean — Charles H. Phifer — "Medical Economics"

June 12 — St. Clair — Charles H. Phifer — "Jaundice"

July 7 — Hancock — E. L. Hill — "Poliomyelitis"

September 4 — 9th District Post Graduate Conference — 5 speakers

September 9 — Effingham — Richard Ahroon — "Chronic Rheumatic Diseases"

September 12 — Jersey-Greene — Carroll W. Stuart — "Surgical Problems of the Head and Neck"

September 18 — Monroe — W. C. Scrivner — Obstetrics

September 21 — Maternal Welfare program, Springfield — 13 speakers.

September 25 — LaSalle — Herbert E. Schmitz — "Diagnosis & Treatment of Cancer of the Breast and Female Pelvis"

September 25 — LaSalle — Henry L. Schmitz — "Diagnosis & Treatment of Lymphoblastomas & Leukemias"

September 25 — LaSalle — Peter A. Nelson — "Diagnosis & Treatment of Carcinoma of the Oral Cavity & Gastro-Intestinal Tract"

October 2 — Perry County — Edwin F. Hirsch — "Value of Pathologist in Cancer Diagnosis & His Function in the Hospital"

October 3 — Madison County — George L. Drennan — "Deafness in Childhood"

October 6 — Hancock County — E. T. Hoyt — "Sulfanilamide"

October 7 — Knox County — M. H. Streicher — "Diseases of the Colon & Rectum"

October 7 — Knox County — W. A. Gustafson — "Diagnosis & Treatment of Ruptured Intervertebral Discs"

October 7 — Vermilion County — Italo F. Volini — "Pneumonia"

October 8 — 1st Councilor District Post-Graduate Conference — 5 speakers

October 9 — Champaign County — Hugo O. Deuss — "Newer Aspects of Chronic Pulmonary Tuberculosis"

October 14 — Peoria — Charles B. White, St. Louis — "Use of Blood Plasma in Surgery"

October 14 — Rock Island — Frederick Merrifield — "Related Problems of Physicians, Surgeons & Dentists"

October 14 — Rock Island — K. M. Manougian — State Medicine

October 14 — Tazewell County — Richard F. Herndon — "Nephritis"

October 14 — Effingham — Lewis T. Gregory — "Gynecological Problems and Their Treatment"

October 15 — DuPage — J. H. Hutton — "Practical Points in Endocrine Diagnosis & Therapy"

October 16 — Jackson — W. C. Scrivner — "Obstetrical Hemorrhage"

October 16 — Monroe County — G. C. Otrich — "Do's and Don'ts in Ear Nose & Throat Treatments for the General Practitioner"

October 16 — 5th District Post-Graduate Conference — Lincoln — 5 speakers

October 23 — 4th District Post-Graduate Conference — Moline — 5 speakers

October 24 — Cook County Physicians Assoc. — J. H. Hutton — "Practical Points of Endocrine Therapy & Diagnosis"

October 29 — Will-Grundy — F. E. Senear — "Eczema, Eczematoid Eruptions"

October 30 — LaSalle — James T. Case — "Gastrointestinal Diagnosis"

October 30 — Randolph — C. E. Lane — "Common Skin Diseases"

October 30 — Stephenson — William Johnson — "Surgical Management of Peptic Ulcer"

October 30 — Franklin — Edward W. Cannady — "Medical Management of Hypertension"

October 30 — Randolph — Richard Paddock — "Management of Breech Presentation"

November 6 — 8th Post-Graduate Conference — 7 speakers

November 6 — Southern Illinois Medical — 12 speakers

November 10 — Winnebago County — S. A. Portis — "Modern Concepts in the Treatment of Diseases of the Liver"

November 11 — Bureau — H. M. Hedge — "Diseases of the Skin"

November 11 — Kankakee — I. F. Volini — "Sulfanilamide Group of Drugs"

November 11 — Lake — G. J. Musgrave — "Sinus Diseases & Preventive Methods of Treatment"

November 12 — McDonough — F. G. Norbury — "The Nervous Patient in General Practice"

November 12 — Will-Grundy — James H. Hutton — "Recent Progress in Endocrinology"

November 13 — Livingston — Reno Rosi — "Pneumonia"

November 13 — Tri-County — 4 speakers

November 18 — Tazewell — B. Lyman Stewart — "Office Urology"

November 18 — DeKalb — Reno Rosi — "Pneumonia"

November 18 — DeKalb — James A. Conner — "Diagnosis & Treatment of Communicable Diseases of Childhood"

November 18 — 7th Councilor District — 4 speakers

November 26 — Franklin County — Samuel D. Soule — "The New Estrogenic-like synthetic stilbestrol"

November 27 — Monroe — Edward W. Cannady — "Medical Management of Hypertension"

November 27 — 2nd Councilor Post-Graduate Conference — 5 speakers.

Respectfully submitted,
Jean McArthur

DO YOU KNOW

That Rocky Mountain spotted fever is not confined to any particular section of the United States? That it is spread by the wood tick and that it is a highly fatal disease?

That it was first known as the bitterroot disease, named for the Bitterroot Mountain area of western Montana where the disease was prevalent as early as 1880?

That it is called spotted fever because the victims of the disease have a spotted red rash, irregular in size and shape appearing on ankles, wrist and head after three days of illness, and spreading over the entire body as the disease advances?

That other symptoms of the disease are drowsiness, neck stiffness, high temperature and moderately rapid pulse?

That in 1937 in Iowa there were two unusual outbreaks of the disease and that cases usually develop in early June when the wood tick or common dog tick begins its season of activity?

That the hazards of Rocky Mountain spotted fever may be reduced by observing the following precautions?

Keeping on a lookout for ticks in summer camps, on picnic grounds, on hiking trips and on farms.

Making people "tick conscious" so that during the tick season they will inspect themselves morning, noon and night for evidence of ticks, and remove any before they have a chance to attack and engorge themselves.

Dipping dogs during the tick season.

Using spotted fever vaccine, which however is expensive, and best reserved for use by those constantly exposed to the hazards of the disease.

"WAR GAMES"

How does the wife of a doctor on active duty spend her time?

Lieutenant Benjamin R. Gutov, Detroit physician now serving with the 102nd Medical Regiment, had to face this question last month. While participating in the Tennessee maneuvers, he received a letter in the form of a jig-saw puzzle. It was from Mrs. Gutov. After spending more than an hour piecing it together, the lieutenant read:

"Don't work too hard!"

Correspondence

1942 ANNUAL MEETING COMMITTEES

Committee on Arrangements
Hermon H. Cole ..... General Chairman

Executive Committee
Don W. Deal ..... Chairman
Richard F. Herndon — Harry Otten

Reception Committee
J. L. Schilsky ..... Chairman
Rex S. Campbell — Geo. H. Fleischli
M. E. Rolens — John A. Wyness

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Robert Flentje ..... Chairman
Corwin S. Mayes — Robert K. Campbell
John J. McShane — A. T. Kwedar

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Nelson H. Chestnut ..... Chairman
C. B. Stuart — A. E. Steer
R. T. Clark — F. K. Fleischli

A. M. Livingston

President's Dinner Committee
Berton W. Hole ..... Chairman
Robert K. Campbell — E. L. Bernard

Veterans' Dinner Committee
Gerald C. Hunt ..... Chairman
Geo. B. Stericker — Samuel R. Magill

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Frank N. Evans ..... Chairman
Franklin Maurer — John F. Deal

Secretaries' Conference Committee
Frank M. Davis ..... Chairman
Thomas F. Harmon — Kenneth H. Schnepp

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Kenneth H. Schnepp ..... Chairman
B. Lyman Stewart — E. T. McClay

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Committee on Surgery
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Committee on Eye, Ear, Nose and Throat
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Committee on Pediatrics
O. E. Ehrhardt ..... Chairman
A. R. Eveloff — H. C. Blankmeyer

Committee on Obstetrics and Gynecology
E. Harold Ennis ..... Chairman
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Committee on Industrial Surgery
G. W. Staben ..... Chairman
Robert J. Patton — William R. Bernard

Women Physicians Committee
Clara Edmunds Holmberg ..... Chairman
Grace S. Wightman — Elizabeth B. Ball

Committee on Pathology
Harry M. Steen ..... Chairman
Aloysius Vass — Albert C. Mueller

Technical Exhibits Committee
Wm. J. Morginson ..... Chairman
Albert C. Mueller — Frederick Fink

Scientific Exhibits Committee
James Graham ..... Chairman
Anthony Kerasotes — Glenn C. Wolf

Golf Committee
Fred P. Cowdin ..... Chairman
Richard F. Herndon — W. P. Levis

Ladies Entertainment Committee
Mrs. Nelson H. Chestnut ..... Chairman
Mrs. M. E. Rolens — Mrs. F. K. Fleischli
Mrs. J. E. Reisch — Mrs. Howard Penning

Stag Entertainment Committee
W. P. Levis ..... Chairman
William R. Bernard — Geo. H. Fleischli

OFFICE OF CIVILIAN DEFENSE

Washington, D. C.

November 15, 1941

Dr. George Baehr, Chief Medical Officer of the Office of Civilian Defense, Washington, D. C., has announced the appointment of a subcommittee of the Advisory Board of the Medical Division, Office of Civilian Defense, to prepare recommendations on protective procedures for hospitals in the event of belligerent action.

Dr. Robin C. Buerki, dean of the Graduate School of Medicine and director of hospitals of the University of Pennsylvania, Philadelphia, a member of the Medical Advisory Board, is chairman of the new subcommittee and the members are:

Dr. Willard C. Rappleye, commissioner of hospitals, New York City.

Dr. Asabel J. Hockett, superintendent of Touro Infirmary, New Orleans.

Dr. Anthony J. J. Rourke, medical superintendent of Stanford University Hospitals, San Francisco.

Dr. Joseph Turner, director of Mount Sinai Hospital, New York City.

Dr. Huntington Williams, commissioner of health of Baltimore.

The subcommittee held its first meeting at the Hotel Commodore, New York, November 8. With Dr. James M. Mackintosh, former Chief Medical Officer of the Scottish Ministry of Health, as a guest to advise the group, measures for preventing or minimizing damage to buildings, handling of casualties, evacuation, provision and protection of supplies, and training of personnel for specific duties in case of bombing were discussed in detail. The basis for discussion was a study made by a committee of the American Hospital Association on physical defense of hospitals, of which Dr. Hockett is chairman. It is expected that a report will be issued jointly by the hospital association committee and the committee representing the Office of Civilian Defense.

Dr. Mackintosh also conferred with the staffs of the medical and civilian protection divisions of the OCD at the Washington headquarters, November 7, describing in detail Britain's organization of its protective services, its early mistakes and the measures taken to correct them.

The basic organization for rescue work in a given area consists of three essential groups with a central control, police, rescue and fire services, ARP control and medical service.

One of the early mistakes was the belief that it was imperative to have first aid workers on the scene of a bombing immediately. Bitter experience showed that injured persons were usually buried under rubble and glass of their homes and that hours of work by the demolition and rescue squads were often necessary before first aid could be given.

Dr. Mackintosh emphasized the necessity for a central ambulance control. Ambulances are dispatched only by the central control and are not allowed to move from a bombed area until routes to hospitals have been surveyed. To stop "panic calls" from individuals, private telephones are now cut off the moment an air raid warning sounds.

First aid posts, in addition to their obvious function of caring for the injured, are invaluable as rendezvous for rescue workers, physicians and nurses as well as the general population, who may become lost in the blackout, frightened, choked and blinded by dust, he said. In the first aid post the workers can clean up, have a cup of tea and return refreshed to their activities.

APPOINTMENT OF REGIONAL MEDICAL OFFICERS

The Office of Civilian Defense has organized on a regional basis, with regions corresponding to the U. S. Army Corps Areas. A regional director has been appointed for each region with headquarters in the same city in which the corps area headquarters are located. Regional medical officers have been appointed as follows:

First Civilian Defense Region: Dr. Allan M. Butler, 101 Milk Street, Boston.

Second: Dr. H. Van Zile Hyde, 111 Eighth Avenue, New York City.

Third: Dr. W. Ross Cameron, 400 Cathedral Street, Baltimore.

Fifth: Dr. William S. Keller, 425 Cleveland Avenue, Columbus, Ohio.

Eighth: Dr. Witten B. Russ, Majestic Building, San Antonio, Texas.

Ninth: Dr. Wallace Hunt, 233 Sansome Street, San Francisco.

These physicians have been commissioned as senior surgeons in the U. S. Public Health Service.

ASSISTANT CHIEF NURSES NEEDED *FOR ST. ELIZABETHS HOSPITAL*

The Federal Civil Service Commission has announced an examination for the position of Assistant Chief Nurse for St. Elizabeths Hospital, Washington, D. C. The salary is $2,000 a year. Other vacancies in positions requiring similar qualifications in Washington, D. C., only will be filled from this examination.

St. Elizabeths Hospital provides treatment for mentally ill members of the U. S. military service and for certain civilians. The duties of Assistant Chief Nurses include the instruction and discipline of staff and student nurses and attendants. They will also serve as instructors

in nursing arts, including psychiatry, in the school of nursing.

To qualify, applicants must meet the requirements in education and experience prescribed by the Nurses' Examining Board of the District of Columbia. This includes completion of a full course in an accredited school of nursing requiring a residence of at least 2 years in a hospital having a daily average of 50 or more patients. Applicants must have a bachelor's or master's degree with major study in advanced nursing education from a college or university of recognized standing. In addition to these educational requirements, appropriate experience in the nursing field is required, including instruction in the nursing arts. No written test will be given for these positions.

Applications must be on file with the U. S. Civil Service Commission, Washington, D. C., not later than December 30, 1941. Announcements and application forms may be obtained at any first- or second-class post office or from the Commission's Washington office.

WOMAN'S AUXILIARY ACTIVITIES

The Woman's Auxiliary to Vermilion County Medical Society opened their fall activities Sept. 2nd with a dinner meeting in the Hotel Wolford.

Among 20 to attend the initial meeting were two new members, Mrs. H. G. Stoll, Danville, and Mrs. Herman Secunda, Westville.

Mrs. C. L. Bennett, who is serving as chairman of the Hygeia Committee and also of the annual club party, appointed her committee to assist in the party planning. This event has become the major activity of the auxiliary, the Vermilion County organization having received first national prize for the last two years.

Feature on the program was Mrs. Solomon Jones, who gave a review of the recent article "Defense" in Hygeia. She also reported on the Post Convention meeting.

On Oct. 7th a short business session was held at which time Mrs. C. L. Bennett gave a final report on the Auxiliary's game night. Clear receipts reached $130.81. This money will be used to purchase Hygeia Magazine which will be placed in the city schools and public reading places.

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The Woman's Auxiliary to the Chicago Medical Society held its Public Relations Meeting on Nov. 5th at the Museum of Science and Industry.

The Address of Welcome was given by Dr. James P. Simonds, President The Chicago Medical Society followed by a few words of greeting by Major Lenox R. Lohr, President, Museum of Science and Industry.

Guests of Honor, Mrs. Harry Otten of Springfield, President of the Woman's Auxiliary to the Illinois State Medical Society. Dr. James P. Simonds, Dr. H. Prather Saunders, Dr. Oscar Hawkinson.

Dr. Eben Carey, Dean, Marquette University, Milwaukee, and Curator of the Medical Exhibits gave a lecture on "Medical Science and the Public."

A conducted tour followed the lecture and tea was served.

Mrs. Harry Otten, President

Mrs. Charles W. Stigman,
Press & Publicity.

WINTER MEETING

The winter meeting of the Iowa and Illinois Central District Medical Association will be held Wednesday evening, December 10 at the Blackhawk Hotel in Davenport, Iowa.

At 7:45 P. M. Dr. G. A. Sywassink of Muscatine, Iowa will give a short address on "Comments on Thyroid Surgery."

The guest speaker of the evening will be Dr. Louis J. Karnosh of Cleveland, Ohio, associate professor of Nervous and Mental Diseases, Western Reserve University School of Medicine in Cleveland, Ohio, who will speak on "Radical Methods in the Treatment of Melancholia."

The scientific program will be preceded by a dinner at 6:30 P. M.

AMERICAN ORTHOPSYCHIATRIC ASSOCIATION

The Nineteenth Annual Meeting of the American Orthopsychiatric Association, an organization for the study and treatment of behavior and its disorders, will be held at the Hotel Statler, Detroit, Michigan, on February 19, 20, and 21, 1942. Copies of the preliminary program will be sent upon request. A registration fee will be charged for non-members.

UROLOGY AWARD

"The American Urological Association offers an annual award 'not to exceed $500.00' for an essay (or essays) on the result of some specific chemical or laboratory research in Urology. The amount of the prize is based on the merits of the work presented, and if the committee on Scientific Research deem none of the offerings worthy, no award will be made. Competitors shall be limited to residents in urology in recognized hospitals and to urologists who have been in such specific practice for not more than five years.

Essays shall be in the hands of the Secretary, Dr. Clyde L. Deming, 789 Howard Avenue, New Haven, Conn., on or before April 1, 1942."

ANNUAL PRIZE COMPETITION OPEN TO NON-MEMBERS

The Chicago Surgical Society announces that competition for the 1942 Annual Prize is now open to young men devoting themselves to surgery in Cook County and who are not members of the Society. A prize of $250.00 will be awarded for the most meritorious original investigation in one or both of the fields of experimental and clinical surgery. The paper submitted should be of original work which has not been printed or presented previously. References to the literature, illustrations, and the general makeup of the paper should conform to the accepted standards of medical writing. The manuscript should bear no identification marks of individual, hospital, or institution, but should be accompanied by a sealed envelope bearing on its outside the title of the paper and containing within it the name and address of the author. The Society reserves the right to make no award if work of merit is not submitted. Manuscripts should be sent to the Secretary of the Chicago Surgical Society, 54 East Erie Street, Chicago, not later than March 1, 1942.

LIBERALIZATION OF CIVIL-SERVICE EXAMINATIONS FOR NURSES

In January of 1941, the Commission announced an examination (Announcement No. 38) to secure Public Health Nurses ($2,000 a year) and Graduate Nurses, General Staff Duty ($1,800 a year) for the Government service. A revised edition of the examination has just been issued in which for Graduate Nurse, General Staff Duty, the time limit for graduation from a school of nursing has been increased to fifteen years. In the original announcement, graduation within the past twelve years was required.

The new examination Announcement No. 38-Revised, provides that persons over the age limit and those who cannot meet the physical requirements may apply for the examination *if they meet all other requirements of the announcement.* The examination announcements for Junior Graduate Nurse, $1,620 a year (Announcement No. 88 of 1941) and Junior Public Health Nurse, $1,800 a year (Announcement No. 103 of 1941) have also been amended to allow over-age applicants and those who cannot meet the physical requirements to apply for these examinations. Persons applying under these provisions, if found otherwise eligible, may be appointed for temporary duty ONLY, for the duration of the emergency in the absence of qualified eligibles.

Persons who have been rated eligible under Announcement No. 38 issued in January, 1941, need not file new applications under Announcement No. 38-Revised. Applications for the positions of Public Health Nurse, Graduate Nurse, Junior Graduate Nurse, and Junior Public Health Nurse may be filed until further public notice. Applicants will not be given a written test but will be rated on their education and experience.

Announcements and application forms may be obtained at any first-or second-class post office or from the Civil Service Commission, Washington, D. C.

UNITED STATES CIVIL SERIVCE COMMISSION

RED CROSS BLOOD COLLECTIONS TO GO ON NATION-WIDE BASIS AT REQUEST OF ARMY AND NAVY

At the rquest of the Surgeons General of the Army and Navy, the American Red Cross will extend its blood collection program to key metropolitan cities on the Pacific coast and in the midwest. This was announced at national headquarters by James L. Fieser, vice chairman in charge of Red Cross domestic operations, who said negotiations were now under way with large chapters, which because of the geographical location, size and facilities, were equipped to be included in the program.

At present seven eastern cities are engaged in the project. Collections are shipped by refrigerated express to a processing depot at Philadelphia where blood is reduced to dry plasma form for use by the Army and Navy. Arrangements are being worked out with biological laboratories in the midwest and Pacific areas for processing blood collections received from the cities to be added, Mr. Fieser said.

Plans for extending the collection program were announced following completion of a "pilot" project in which blood donors of the seven eastern cities filled an initial request of the Navy for 15,000 donations. It was explained that most of these, after being processed and hermetically sealed, already have been placed aboard U. S. fighting ships engaged in the Atlantic sea patrol.

"The present emergency requires that the Red Cross take every necessary step to provide as soon as possible an adequate supply of plasma for the Army and Navy," Mr. Fieser said. "Some 200,000 donors will be needed to fill current requests of our military and naval forces. Extension of the collection program will enable the Red Cross to meet these requests.

"Those who have given their blood can have the satisfaction of knowing that it is today on the high seas safeguarding the lives of our sailors. Donations in increasing numbers not only will enable the Red Cross to complete its purpose of supplying adequate supplies to our naval vessels, but also will make it possible to furnish

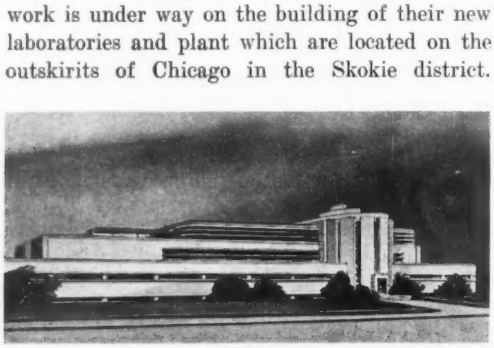
medical units of the Army the amounts requested."

The first step in widening the blood collection program will be to set up collection depots at Los Angeles, San Francisco, Chicago, Detroit, St. Louis, Cleveland, Indianapolis, Cincinnati and Pittsburgh. Those cities now engaged in the program include New York, Boston, Philadelphia, Baltimore, District of Columbia, Buffalo and Rochester (N.Y.). As the program gains momentum, other cities will be added.

Biological laboratories undertaking the processing of the blood have agreed to do so on a non-profit basis, Mr. Fieser said.

NEW SEARLE LABORATORIES BEING BUILT AT SKOKIE, ILLINOIS

The well known manufacturing house of G. D. Searle & Company, Chicago, announces that work is under way on the building of their new laboratories and plant which are located on the outskirits of Chicago in the Skokie district.



It is stated that all of the new ideas gained in recent years in the building of pharmaceutical laboratories will be utilized in the building of this new plant, in addition to many incorporated through the firm's policy of the most exacting scientific control in every phase of manufacturing of their drugs.

Completely modern in design, it will not be a factory-like building, but a scientific laboratory for the development and production of pharmaceutical products under the most modern scientific and hygienic conditions. The building will be a reinforced concrete, flat-slab, set-back type, three stories high with a basement, containing 1,500,000 cubic feet. The exterior will be modern and streamlined in design with continuous windows protected by projecting metal fins which help to carry out the streamline design. The entire building will be completely air-conditioned.

Following the company policy of maintaining close personal interest in the well-being of all associated with it, there is to be a recreation center with lounges, restrooms, meeting and dining rooms for all members of the organization. The laboratory atmosphere is to be carried out throughout the building except in the auditorium, which is designed not only for meetings of the staff and workers, but also for clinical meetings and demonstrations to visiting physicians and interested medical groups.

The second floor of the building will be devoted to the Searle research laboratories which will be fitted out with the most modern equipment, devices and apparatus known to the sciences of chemistry and pharmacy.

Adjacent to the laboratories will be the scientific library, one of the most extensive in the country, with the walls paneled in white oak and facilities for the filing and indexing of journals, books and papers in all languages.

G. D. Searle & Company has been established for more than fifty years, and its business is devoted exclusively to providing drug preparations to be used by the medical profession. Mr. John G. Searle, the president of the company, is the third member of his family to manage the business, founded by his grandfather in 1888.

Nurses and interns risk tuberculous infections in a general hospital which does not accept known cases of pulmonary tuberculosis. This in indicated by the change in their reactions to the Mantoux test. As this change is not shared to a comparable degree by the students of the same age group in the same community, there is reason to suspect that patients with whom they are in contact may be spreaders of the disease. Obviously, patients with open tuberculosis who gain admittance to a general hospital bring their infection with them and add to the hazards of their new environment. M. E. Barnes, M.D., Jour. of Amer. Med. Assn., Nov. 23, 1940.

A fertile field for the tuberculosis germ is found in workers over thirty years of age. Although the disease is recognized as an occupational hazard of the "dust trade" employees, the occurrence of the disease in other trades is wide enough to warrant the X-ray examination of all workers in all fields of industry. Kendall Emerson, M.D.

The ex-patient must always be considered a possible source of infection in tuberculosis and he must never be told he is safe. J. G. Bohorfoush and Pauline Michael, Amer. Rev. of Tuber., Oct., 1940.

Medical Economics

Edited by R. K. Packard, M.D., Chairman of the Committee on Medical Economics of the Illinois State Medical Society, 826 East 61st Street, Chicago, Illinois.

The medical profession has been more or less continuously denounced as being selfish and obstructive to plans of meeting the social and economic changes, under which we practice. This idea has been fairly well sold to the public by various forms of propaganda. Also there are many of our members who are inclined to feel that perhaps such may be the case, and who feel that our national organization particularly has not been active in this important medical economics.

For this reason, it might be well to briefly review the record of the American Medical Association and see just what it has done and what it now is doing for us. It is important to know, in better detail, just what its record is, so that we can meet and refute these denouncements with better grace and greater skill wherever we meet them, in private or in public.

At the first meeting of the American Medical Association in 1847, almost a cenury ago, it favored public health movements and has repeatedly urged and continuously advocated a National Department of Health with a physician as head who will be a member of the president's cabinet. In 1910-1916, when agitation for sickness insurance first began in the United States, it made the most complete survey and study of the subject ever made up to that time, and based on these findings, passed this resolution in 1920: "Resolved, That the American Medical Association declares its opposition to the institution of any plan embodying the system of compulsory contributory insurance against illness, or any other plan of compulsory insurance which provides for medical service to be rendered contributors or their dependents, provided, controlled, or regulated by any state or the federal government."

In 1921, the House of Delegates of the A. M. A. passed this resolution: "Resolved, By the House of Delegates of the American Medical Association that it approves and endorses all proper activities and policies of state and federal governments directed to the prevention of disease and the preservation of the public health." And in 1922, this resolution defining "State Medicine" was passed: "The American Medical Association hereby declares its opposition to all forms of "State Medicine" because of the ultimate harm that would come thereby to the public weal through such form of medical practice.

"State Medicine" is hereby defined for the purpose of this resolution to be any form of medical treatment, provided, conducted, controlled, or subsidized by the federal or any state government, or municipality, excepting such service as is provided by the Army, Navy, or Public Health Service, and that which is necessary for the control of communicable diseases, the treatment of mental disease, the treatment of the indigent sick, and such other services as may be approved by and administered under the direction of or by a local county medical society, and are not disapproved by the state medical society of which it is a component part."

Following the industrial depression of 1929, numerous plans for medical services to depression stricken people sprung up so rapidly that the House of Delegates in 1934, in order to guide, assist, and encourage the organization, adopted the following ten principles:

1. All features of the medical service plan will be under the control of the medical profession.
2. No third party will come between the patient and his physician; the responsibility for the character of the medical service will be borne by the medical profession.

3. Subscribers will have free choice of a legally qualified doctor of medicine.
4. The method of giving service will retain a permanent, confidential, "family physician" relationship between the physician and the patient.
5. Medical service is considered separately from hospital service.
6. The cost of the payments for medical services will be borne by the patient in accordance with his income status.
7. There is no connection between the medical service and cash benefits for the patient.
8. All legally qualified doctors of medicine who wish to give services under the conditions established will be included.
9. The group to be served will be below the "comfort level" standard of income.
10. There will be no restrictions on treatment or prescribing which are not formulated and enforced by the organized medical profession.

The bureau of medical economics of the A. M. A. has done a tremendous amount of important and helpful work by its researchs, which are at the disposal of those who are interested, which clearly show that it has been alive, active, and progressive in its attempts to analyze and meet the changing social and scientific conditions under which the art of medicine is practiced. Through it the A. M. A. has always favored and urged public health activities, national as well as local. There is no organization in our country that can equal the record of the A. M. A. for efforts to secure good medical care for the under privileged and to keep away the dirty fingers of political dispoilers.

The American Medical Association does not oppose the principle of insurance when it is used to meet the costs of medical care where there is no interference with the quality of the service. Its department of medical economics has given more study to schemes for compulsory sickness insurance (State Medicine) over a longer period of time than those individuals and institutions who favor or urge their adoption in the United States. It has repeatedly shown that medical service is something that can not be purchased wholesale as a commodity and then distributed as such at retail. Further, it has shown that when or where such is attempted, medical services offered become inadequate, some forms of sickness are increased, the control of disease is interfered with, and mortality rates are not reduced.

I think it is true that many of us considered medical economics nothing more than better office business methods, and improved collection systems, or methods of obtaining payment of bills for pauper relief. And that, in a broader sense, medical economics as related to our changing social and economic conditions, was something like the war, far away across the Atlantic, remote and peculiar to continental Europe.

Among the first plans for Voluntary Prepaid Medical Service to be launched in this country, and which have continued in successful operation, are the Medical Service Bureaus of Oregon and Washington. The workmen's compensation laws in these states, unlike other states, permitted a deduction from the employees' wages to provide medical services for compensable injuries and diseases. This brought into existence private corporations who made contracts with employers providing medical services for employees entitled to compensation. To give such medical services these corporations hired or made contracts with physicians, hospitals, druggists, and nurses. They added hospital and medical care for non-compensable accidents and disease and built up a business that competed seriously with the private practice of medicine and began to develop abuses and evils under their contract practice that led to the development of Medical Service Bureaus by County Medical Societies.

Last August it was my privilege to be in Bellingham, Washington where I visited the offices of Physicians and Dentists, Incorporated. This is a Medical Service Bureau located in the county seat of Whatcom County, the most northwest county in the United States. It began its existence in 1932 as a credit rating and collection service bureau under the able leadership of Robert C. Elting, who continues to serve as business manager.

Its functions were gradually extended until now it provides for prepaid group medical serv-

ice, first aid service, hospitalization, nursing, x-ray service, ambulance service, gives credit ratings, and collects bills for its members, and maintains a day and night telephone service.

The cost to the members is $2.00 per month membership fees. Operating or administrative expense, on the basis of total income, is between 7% and 8% for 1940. In this connection, it is interesting to note that the administrative expense of the Multnomah Medical Service Bureau, in Portland, Oregon, for 1940 was 8.94%.

The population of Whatcom county is 55,000. The number of physicians is 55. All are members of this Medical Service Bureau except two. All hospital staffs are members. Through this Medical Service Bureau 3,000 old age assistance medical cases are handled. The state of Washington, following the passage of its Old Age Assistance Act, instead of setting up its own administrative unit in Whatcom county, used the set up of the medical service bureau on a percentage basis. Twenty-five hundred indigents are handled through the office of the bureau. The group prepaid medical service takes care of approximately 1500 families. The Farm Security Administration also operates its plan through the offices of the bureau.

It is interesting to note that a great percent of the population of Whatcom county continues to receive its medical service under the conditions of private practice. The physicians participating in the activities of this medical service bureau are not entirely dependent on incomes from services furnished by the bureau, so that they can maintain a quality of medical service on the high level of private practice. The fees received for services rendered through the bureau were apparently satisfactory, and in my opinion compared favorably with fees received in the Mississippi Valley in private practice.

All business relations of the medical profession with labor and others are transacted by the business manager, Mr. Elting, and the board of directors, through the business office of Physicians and Dentists, Incorporated, which is the business office of the Whatcom county Medical Society.

Here we had the beginning organization of American Medicine through County Medical Society units, on a broader and more practical scale in which Medical Economics actually developed real significance to its members. It meant the assumption of collective professional economic responsibility. It meant the group sale of professional skilled services on a prepaid experimental, monthly insurance basis. It meant the employment of lay skills. It meant the education of medical men to the changing demands of an industrial age and that I suspect was the toughest job of all. It meant a successful struggle to maintain the personal intimate relationships of doctor and patient through such changes unmolested by bureaucratic or selfish lay interests.

W. M. Hartman, M. D.

DOCTORS SNUB COLLEAGUE

Almost half of those present walked out when Dr. Aaron Rosanoff, director of the State Department of Institutions, began his address at the California Medical Association covention. This incident, without precedent in the history of the association, was said to have been the physicians' method of expressing disapproval of conditions in State institutions.

SQUIBB STILBESTROL RELEASED FOR SALE

After two years of clinical trial, during which time over a hundred papers were published reporting studies in which it was used, Stilbestrol manufactured by E. R. Squibb & Sons, New York, is now offered for sale to the druggists of the land. Stilbestrol is a synthetic estrogen possessing the physiologic properties of estrogenic substances derived from natural sources. Chemically, it is alpha, alpha'-diethyl-4, 4'-stilbenediol. It is also called diethylstilbestrol.

Stilbestrol orally has a ratio of effectiveness to intramuscular injection much superior to that possessed by natural estrogens. It has another advantage over the natural estrogens in that it is considerably more economical.

Striking therapeutic results have been obtained with estrogenic substances, whether natural or synthetic, in alleviating the vasomotor symptoms of the menopause. In proper dosage, they are also effective in treating gonorrheal vaginitis in children, senile vaginitis and kraurosis vulvae and pruritus vulvae of the menopause. It may also be useful in preventing and relieving painful engorgement of the breasts during suppression of lactation.

"Are you a drinking man, Mr. Sooner?"

"Never was, Doc. Only recently I kind of got started on the stuff, and I can't stay away from it."

"Just how recently is that?"

"Oh, maybe ten, twelve years."

Original Articles

RECURRING OR PERSISTENT GIANT URTICARIA (ANGIONEUROTIC OEDEMA)

R. F. FARQUHARSON, M.B., F.R.C.P. (C)

The occurrence of urticaria of varying severity is one of the common problems of private practice. Most people have been troubled occasionally with a few hives and it is not uncommon to experience a more generalized urticarial eruption as a transient phenomenon which is of no importance. Frequently one is called on to give relief to the patient suffering from the intensely itchy generalized urticaria of serum sickness which comes at a definite interval after the administration of serum. One may find an occasional patient who is sensitive to injections of liver extract, or similar material, and who suffers a transient distressing eruption that appears within a few hours of the injection. Rather less commonly one sees a patient suffering generalized urticaria after ingestion of a food or drug — strawberries, lobsters, aspirin etc. — to which he happens to be sensitive. These definite allergic types of urticaria come as an incident or series of incidents of which the inciting cause is commonly obvious, but sometimes when the offending factor is not apparent. Usually they do not constitute a serious problem.

The treatment of patients suffering from recurring and persistent urticaria is much more difficult. Often the disorder has had a sudden onset and is at first regarded as an unimportant, annoying incident. Sometimes only a few trivial hives appear at first and little attention is paid to them. Later widely spread urticarial wheals appear and persist for long periods, and recur again and again with only short intervals of freedom. In some cases the wheals are huge, in others smaller, usually varying from day to day. The itching may be almost intolerable. Swelling of the cheeks, lips, eyelids is common, and the resulting disfiguration may be the patient's chief symptom. Less frequently there is swelling of the tongue and other mucous membranes.

In the common generalized form, dangerous swelling of the larynx is extremely unusual. Such a serious lesion does occur in those rare cases in which there is a family history of angioneurotic oedema, with instances of sudden death from laryngeal obstruction. Unlike the hereditary cases in which angioneurotic oedema recurs throughout life, the common type of which I speak has a more definite onset, persists for weeks, months and occasionally a few years, then tends to cease spontaneously. In both types it is probable that there are underlying constitutional factors in virtue of which the urticarial reaction is more easily elicited. Both tend to occur in nervous, sensitive individuals. In both types the disorder is greatly aggravated by worrying about it.

Because of the emphasis laid on allergy in recent years it has been common to regard recurring and persistent giant urticaria as an allergic manifestation. Most of the investigation and treatment has been done from this point of view. Usually these patients have been given a full range of skin tests, histories have been taken carefully, and diets planned to eliminate one substance after another, have been given monotonously in the attempt to find an offending food

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or contact substance. All kinds of remedies have been used. The diet has been restricted, administration of adrenaline, ephedrine, calcium salts, many other drugs new and old, sedatives of various kinds, and application of calamine and other lotions has been tried, usually with little success. The failure to find an underlying cause and to give relief increases the patient's anxiety and gives rise to a feeling of hopelessness. It also focuses attention on the disorder which comes to occupy the patient's mind most of the time.

The thesis of my paper, by no means a new one, is that in many of these cases urticaria recurs and persists because the patient is going through a period of strain or anxiety, an emotional cause having a physical manifestation. Oftentimes the initial precipitating cause has ceased to exert an influence and the trouble is maintained by anxiety about the persistence of the urticaria and the failure of physicians to get to the bottom of the trouble and give relief.

The investigation and treatment of such cases consists in studying the patient as a whole and particularly in recognizing the constitutional type and learning the emotional background. He is usually a sensitive person. Sometimes he has a real cause for worry which is greatly augmented by anxiety about the physical disorder. By the time his full history has been taken carefully and thoroughly from this point of view, not neglecting to go into history of allergy, other reactions, and other diseases, the patient usually understands himself better than ever before and has acquired confidence in the physician. The effect of various emotions on the function of the skin in particular and tissues in general is explained, and a good prognosis given. The result is often dramatic, as indicated by the following cases.

CASE I. — *Mrs. C. B. aged 34.* When first seen in October, 1939, she had been troubled for over a year with generalized urticaria which was most marked on the face. Her eyes would often be closed and her lips greatly swollen. She was never entirely free from the trouble, but tended to be worse in the early morning and in the evening. Search for substances to which she might be sensitive had been unsuccessful. She had thought the condition aggravated by ingestion of tomatoes, eggs, lobsters and strawberries, and although she had avoided these foods for months the urticaria persisted. She could hardly tolerate the itching: she had not slept for over a year without a sedative. She was worried about her appearance and discouraged. She was referred by a dermatologist for thorough investigation.

Physical examination and laboratory investigation failed to reveal any cause for her trouble, but her history showed her to be an intelligent, sensitive, conscientious, rather self-depreciative, pleasing type of person who took things seriously, tended to worry and be at times a little depressed, but not lacking a sense of humour. She had never been robust and had often had periods when she felt run down and tired. At one time or another, tonsils and adenoids, appendix, one ovary and both tubes had been removed. Between illnesses she had worked as a stenographer-secretary to the complete satisfaction of her employers who valued her services highly.

She was fairly well when married at 30 years of age, but worried because of probable sterility. Two years later she became greatly concerned over the mental illness of a sister who was seriously depressed. The patient feared that there might be mental disease in the family and was very sensitive about it. She became listless and tired, and lost interest in ordinary things. When she had been feeling poorly for about one year, hives began to trouble her. There was no obvious reason. The persistency of the urticaria and the disfiguration of her face became her chief concern. Her mind was on it all the time. As one remedy after another failed to help she became more and more discouraged. She refused to go out on the street or to visit her friends because of her appearance, wondering what people would think about her. Unusual agitation seemed to make the swellings worse. She doubted if the cause would ever be found and wondered whether anyone had ever suffered as long from this disorder. She complained that she was useless, just an encumbrance to her husband.

By the time she had given her lengthy history in detail she had begun to appreciate how much her worry and moods had adversely influenced the function of her body. She was told that there was no serious disease, that the urticaria was greatly aggravated and possibly maintained because she was constantly worrying about it, that whether she continued to worry about it or not it would cease spontaneously, but that it would clear up much more quickly if she could get over the agitation and become more philosophical about it. Being an intelligent and rather understanding, sensible person, she appreciated the problem and cooperated at once in her treatment. She began to take an ordinary diet without restrictions; resumed a life of regular hours; began to take increasing amounts of exercise in the open air, and to visit her friends.

In the next few days the urticaria became much less and within a week it ceased entirely. Within a month she was sleeping without sedatives for the first time in over a year. She began to eat and enjoy tomatoes, eggs, lobsters and strawberries, foods that formerly had been thought to aggravate the urticaria. She continues to be well.

CASE II. — *W. G., aged 38, electric welder.* Referred for investigation because of recurring and persistent urticaria of eighteen months' duration. The whole body had been affected but the face particularly had been swollen, often to the point of being unrecognizable. Attacks would persist for days and since the onset he had never had a week of freedom from the trouble. He had consulted many physicians and tried all manner of treatment. He had eliminated from his diet greasy foods, sugar, most starches and milk, without improvement.

By nature he was a calm, quiet sensitive, conscientious person who had been healthy in early life. From the age of sixteen he had suffered aching pain in the left sacro-iliac joint and since 31 years of age had been troubled similarly with aching of the whole spine, most marked in the lumbar region, worse when tired, and worse in the winter. His back had become stiff, yet he had carried on without losing a day from work on that account. At present his spine is rigid from spondylitis deformans.

Some eighteen months previously his face had been cut in a motor accident, requiring eight or nine stitches. He was greatly upset emotionally by the accident. Some two to three weeks later his face became swollen and he suffered an itchy generalized urticarial eruption. From that time he was subject to repeated attacks of angioneurotic oedema involving the face and sometimes extending over the body. He became discouraged and depressed over failure to get relief. He was so sensitive about his appearance that he would stay away from work and would not even go out on the street when his face was swollen. He thought that there must be some serious underlying cause which might require surgical interference of which he was very much afraid. He wondered if it could be due to cancer.

He accepted with confidence the explanation that the persistence of the angioneurotic oedema was due in large measure to his emotional attitude and he seemed to be reassured immediately. The urticaria disappeared almost at once. One month later he reported that he continued to be entirely free of it. He had not felt so well since before the motor accident. When he had been free for two months he witnessed a motor accident following which one side of his face became swollen for twelve hours. On seeing the accident he had anticipated that it might cause a recurrence; he was satisfied that he understood the reason for it and accepted it without anxiety. Since then he has been free from any urticaria, a matter now of several months.

CASE III. — *C.J., aged 30.* This intelligent, artistic professional man had suffered from an extremely itchy generalized urticaria for some three weeks. In referring him for general investigation his physician stated that the man was worn out with lack of sleep and that something must be done about it. When asked what the patient was worrying about he replied that he had no worries. He was happily married, had a good position and good prospects. Before the patient arrived, however, his doctor telephoned again to state that he had learned that the patient had been greatly concerned in the past five to six weeks over some reorganization in the institution where he was employed. He feared that he might be demoted. That day, however, the trouble was cleared up and he was assured of his position. He slept well that night. Within a few days the hives ceased to bother him. Investigation was otherwise negative.

CASE IV. — *E. R., aged 37.* This sensitive, intelligent school teacher suffered for six months from huge urticarial wheals that appeared all over her body. Sometimes there was associated swelling of the tongue and throat with some difficulty in swallowing. She had been greatly worried over a change in the curriculum that made her work more difficult, and she had suffered a strong emotional reaction because her family were opposed to her prospective marriage to a divorced man. When it was decided to go ahead with the marriage with the blessing of her family, the urticaria disappeared and has not recurred in the subsequent four years.

Sometimes the initial attack seems to follow upon exposure and fatigue, as in the case of a woman who suffered an eruption the day after she had been chilled while planting bulbs at their country cottage, late in the fall. Generalized giant urticaria persisted for several months. Skin tests and tests of food by careful dieting were negative. "Thorough investigation" in hospital failed to find a cause. She became quite agitated about her appearance and about the itching and demanded that something be done about it. Everything that was done failed to help her. All this time she was worried, without adequate cause, about her adolescent son who was keeping rather late hours. After bothering her for some six months the hives disappeared spontaneously, and have not recurred in the subsequent five years. Her son has done well and will be graduated this year from university.

One could instance many other cases in which generalized urticaria appeared and persisted during a period of emotional disturbance, to disappear with relief of the anxiety. In the case of a forty year old journalist, giant urticaria recurred repeatedly during several months of unhappy relations at work, and ceased when he was firmly established in a position more to his liking. Similarly, a rather introspective business man of sixty who hated any blemish whatsoever became

greatly concerned over the persistency of a generalized urticaria that had bothered him for about a year. Failure of numerous remedies to give relief increased his anxiety. The wheals disappeared when, after a thorough examination, he was given calcium lactate and assured that such trouble always cleared up spontaneously when treated or not. He has been free from urticaria for over eight years.

Such instances could easily be multiplied. In some cases an obvious emotional factor is apparent; in others it is found only after careful enquiry. When a nervous factor cannot be demonstrated it still holds that in almost all cases the urticaria ceases spontaneously after a period of several months.

It has already been pointed out that cases of generalized urticaria of definite onset have a better prognosis and appear to be different from those familial cases of angioneurotic oedema in which localized swellings recur from time to time throughout life. Even in familial cases, however, much can be done to relieve the attacks and reduce the frequency of their occurrence by helping to relieve nervous and emotional tension and by building up the general physical condition.

It is quite obvious that there must be some constitutional or other underlying factor which renders a patient likely to suffer from angioneurotic oedema in response to emotional disturbance, for many people suffer great emotional strain without any such disorder. It is well known, however, that, like the cardiovascular system and gastrointestinal tract, the skin is markedly affected by nervous influences. In response to acute disturbances there may be flushing or pallor. Chronic strain is often associated with generalized itching. Many types of skin disorders are aggravated by nervous reactions. In good health, on the other hand, the skin is clear, elastic and of good turgor. It is probable that the urticarial response which occurs in some people becomes habitual, being more easily elicited in repeated reactions. The fact that most cases clear up entirely, however, would suggest that the emotional condition is only a very important inciting cause and aggravating factor. Its great importance in treatment is beyond question.

In conclusion, it should be pointed out that in most cases of recurring and persistent generalized giant urticaria it is impossible to demonstrate a definite allergic basis unless one considers the ability to react in this manner to emotional stimuli as an allergic manifestation. A futile persistent investigation along ordinary allergic lines often increases the patient's anxiety and leads to a feeling of hopelessness which makes the situation worse. Most cases will be relieved, however, by careful investigation to bring out the emotional factors, explanation of the relationship between emotional disturbance and the urticaria, and reassurance that in any case the trouble will soon disappear.

HEMOLYTIC STAPHYLOCOCCUS SEPTICEMIA

ALBYN G. WOLFE, M.D.
JACKSONVILLE

Contrary to common opinion, the staphylococcus is the deadliest organism of general sepsis. This bacterium, of universal distribution and of extremely low virulence, is generally considered to be a secondary invader, leading a saprophytic existence on the skin and mucous membranes of the body, producing small pimples, furuncles and abscesses. Thus, it is not fully appreciated that at the same time it is always capable of producing the most dangerous of all septicemias. It is possible, from the most insignificant site of infection — even the tiniest abrasion of the skin — for the staphylococcus to invade and infect the blood stream, with a very serious or fatal outcome due to the formation of septic foci or abscesses in all the organs of the body, with the occurrence particularly of metastatic abscesses, bronchopneumonia, and degeneration of the kidneys, liver and heart.

According to the literature, the instance of staphylococcus is also greater than commonly thought. About two-thirds of all cases of septicemia are due to streptococcus, principally streptococcus hemolyticus. Stevens[1] has made an estimate of 60% and Brokkhart[2] an estimate of 80 to 90%; Rosenow and Brown[3] have given the ratio of approximately 2:1; Neuhof[4] and his co-workers have estimated the instance 3:2.

It is well perhaps to use Kolmer's[5] definition of staphylococcus septicemia, i.e., "An infection of the blood by staphylococci, their pathogenic

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presence and products in the blood, associated with infection of fixed tissues, resulting in severe constitutional disturbances with the signs of sepsis."

It is also well to take cognizance of the fact that a harmless transient staphylococcus bacteremia does occur without septicemia and cases have been reported as occurring after minor surgical procedures, such as extraction of teeth, tonsillectomy, et cetera.

The mortality rate for staphylococcus septicemia is very high. It is a deadly disease and frequently when the diagnosis is made it is already beyond control. Most authors place the mortality from 70 to 90%. Rosenow and Brown[3] report 29 cases, with a mortality of 66%. However, we must recognize the fact that the last several years have seen the most rapid advance in the treatment of this disease, with the advent of the sulfonamide derivatives. These, I am certain, are going to completely reverse the picture, as more reports with favorable results continue to appear in the literature.

The given ratio as to sex appears to be 2 males to 1 female. The greatest age instance appears from 10 to 50; however, it does occur in all ages, from infancy to senility. It is interesting to note in the literature that the age factor is of considerable importance. Patients in the first decade of life seldom recover, the greatest percentage of recoveries occurring between the ages of 15 and 50 years.

Any debilitating disease such as diabetes, hypertrophied prostate, cardiac disease, et cetera, increases the mortality markedly.

The most common sites of infection are carbuncles, skin abrasions, abscesses, furuncles, osteomyelitis, prostatic abscess, infection of the nasal sinuses and dental infections, and tonsils.

With the advent of the present day chemotherapy the duration of the disease is rapidly decreasing. In the past the duration appears to have averaged from 60 to 90 days.

In reviewing the literature, about 90% of the cases appear to be caused by staphylococcus aureus hemolyticus. Occasionally there is reported a case of staphylococcus albus hemolyticus, but the cases I have seen reported have terminated fatally.

The peripheral blood picture is that of a marked toxicity with a secondary anemia (if the patient survives long enough), with a gradual fall in the red blood cells, these being apparently due to the toxic effects on the erythroblastic function and the hemolytic character of the organism. Leukocytosis appears to be the general rule, although in my own cases I did not have a marked increase in the white blood count — in fact, there was a marked leucopenia in one case and moderate in several others. According to the literature, too low or too high a white count indicated a very bad prognosis. The polymorphonuclear neutrophil is increased in practically all cases, sometimes going as high as 100%. This type of case is practically always fatal. The Schilling index always shows a marked shift to the left.

The urine usually shows the effects of toxic parenchymatous changes in the kidneys, with red blood cells, casts or pus, presence of albumin and usually associated acidosis.

Blood cultures are of course positive, and should be verified by two or more cultures, and, if possible, colony counts.

As a general rule complications are common, usually manifesting as a secondary focus of suppuration in a fixed organ or tissue. Failure to demonstrate these foci generally is due to the fact they occur in a silent organ; also, the patient is usually too ill to search extensively for foci. Broncho-pneumonia seems to be the most common of these; however, patients sometimes have no demonstrable complication.

Treatment, of course, is the outstanding problem, due to the nature of the disease; and probably should be grouped under three general headings: (1) Eradication of any local foci that are feeding the infection; (2) Attempted sterilization of the blood stream; (3) Supportive treatment.

Probably the removal or drainage of the source of infection is the most important factor in recovery, even extending to amputation, if necessary.

In the past practically every therapy has been tried. Among the various chemicals that have been used for blood stream sterilization are mercurochrome, metaphen, acriflavin, gentian violet, and others too numerous to mention, but all tried and found wanting. Now, with the advent

of the sulfonamide derivatives it appears we have an improved medication for sterilization of the blood stream in staphylococcus septicemia, to be used in addition to repeated transfusions, especially immunotransfusions, plus a commercial brand of antitoxin. One report[6] deals with the use of neoarsphenamine in combination with sulfathiazole.

In my own cases, all of which had two or more positive blood cultures, I used sulfanilamide, sulfapyridine and sulfathiazole, repeated transfusions, intravenous solutions, hypodermoclysis, foreign protein, intramuscular injections of liver extract, and staphylococcus antitoxin. In one case I was able to use immunotransfusion.

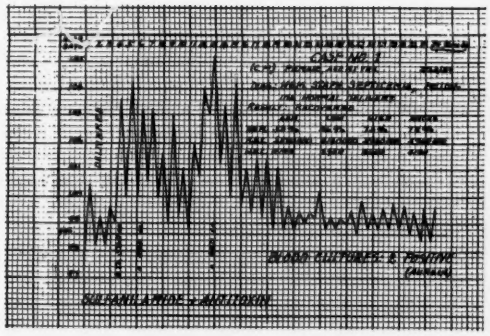
Dosages I have omitted, as you are familiar with them, and times does not permit my going into much detail.

Supportive treatment should consist of absolute rest, forcing of fluids, and diet as high in caloric value as the patient will tolerate, given in small frequent feedings. If the patient is unable to tolerate food by mouth, this should be supplied by intravenous glucose or sucrose, with an adequate intake of chlorides, especially if the patient is vomiting; probably liver extract intramuscularly; and red meats are valuable, especially in the convalescent stage. For failing heart digitalis may be required. Pain should be considered, and every attempt made to alleviate it. Rest and sleep should receive prominent consideration.

Six cases of hemolytic staphylococcus aureaus septicemia have come under my observation in my general practice in a small hospital in the last year or two. One case I saw in consultation. In addition, I am reporting one fulminating case seen by a colleague.

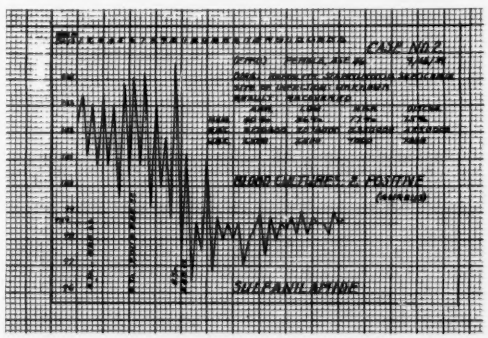
CASE REPORTS

Case No. 1 (C. M.) A white female, age 31, multipara at term, was admitted to the hospital on March 24, 1939. She had no complaints other than pains of labor. Past history of no clinical importance. She had had no prenatal care. Normal delivery of an 11 lb. 2 oz. infant on March 25. Temperature was elevated following delivery, but practically normal on 2nd and 3rd postpartum days. On 4th postpartum day temperature rose to 103.6° at 4 P.M., and for the next 12 days remained elevated, reaching 105° at one time. Lochia was at all times normal. Urine was negative except for trace of albumin. There were no other



objective or systemic findings. In absence of other findings blood culture was made on the 7th day, which was positive for staphylococci (aureus); after 44 hours large amount of hemolysis present. On 14th day second blood culture was positive for staphylococci, with hemolysis. Sulfanilamide therapy was instituted immediately following the first elevation of temperature (on the 4th postpartum day), and continued until the 18th hospital day when it was discontinued because of leucopenia (WBC 3650). Admission hemoglobin was 50%, RBC 2,500,000 and WBC 5100. On the 6th day hemoglobin dropped to 36%, RBC 2,200,000 and WBC 7500. Multiple transfusions were given with the hemoglobin returning to 50%. On the 18th day patient was given 100,000 Units of staphylococcus antitoxin; the 19th day, 40,000 Units, and the 20th day, 20,000 Units. Following the antitoxin patient's temperature began to recede, and subsequent blood cultures were negative. She was put on liver and iron therapy, and her condition continued to improve until on discharge on the 44th day she was recovered. In all probability, parturition was the source of infection.

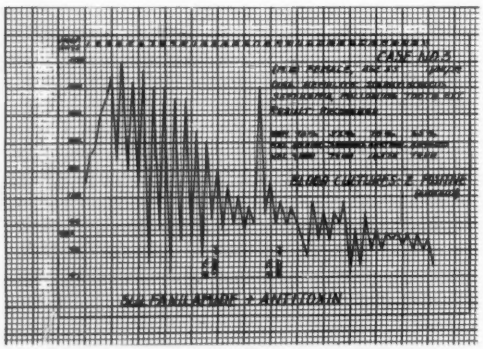
Case No. 2 (E. McD.) An acutely ill, white female, age 46 years, was admitted to the hospital on



September 28, 1939. She gave a history of fever and chills, with occasional l. u. q. pain, during 10 days prior. Physical examination was negative except for marked local tenderness in l. u. q., and a palpable spleen the size of a small grapefruit. Urine showed a few pus cells, and 1 plus albumin. Blood culture made on admission was positive 48 hrs. later for

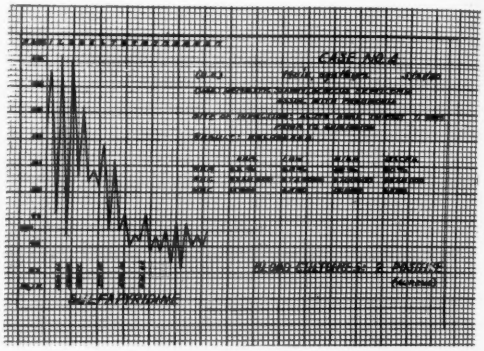
staphylococci (aureus). Subculture showed marked hemolysis. Patient was given 500 cc's citrated blood on 2nd day. Blood culture taken at this time was positive 40 hrs. later for staphylococci. Sulfanilamide was started on 5th day and discontinued on the 13th day. On the 6th day she was transfused twice (200 cc's and 500 cc's); on the 10th day she had a severe chill, with temperature of 104.6°; on the 11th day, 500 cc's blood were given, at which time patient had another chill, with temperature then dropping to normal. On following day temperature was 101.1°, but from then on she had no elevation of temperature above 99°. Supportive treatment was intramuscular liver extract, and intravenous glucose and normal saline. Admission hemoglobin was 40%, RBC 2,170,000 and WBC 2,500. Following first transfusion, H 45%, RBC 2,320,000 and WBC 6,450. On the 6th day H dropped to 36%; following the two transfusions this date it rose to 46%, with WBC 5,550. On the 12th day H 60%, RBC 2,800,000 and WBC 4,350, all of which continued to rise without further transfusions until at time of discharge on 26th day, H 75%, RBC 3,350,000 and WBC 7,000. Source of infection was undetermined.

Case No. 3 (M. B.) An acutely ill, white female, about 55 years of age, very obese, was admitted to



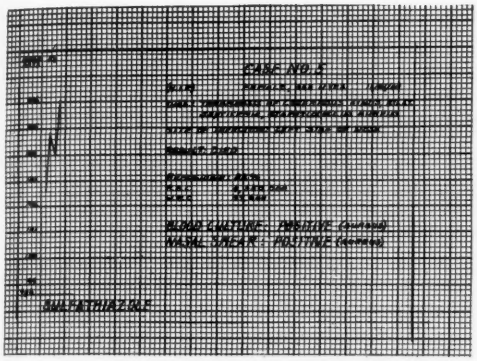
the hospital on November 15, 1939. She had been ill for the week previous, complaining of chills, fever, vomiting, pain in r. u. q., and abdominal distention. Intravenous glucose and normal saline were given and sulfanilamide started, the latter discontinued after 26 hours because of nausea and vomiting. Admission hemoglobin was 70%, WBC 9,000 and RBC 4,120,000; urine showed 4 plus albumin, with acetone and diacetic acid. Blood culture on the 3rd hospital day was positive for staphylococcus (aureus) and subculture showed marked hemolysis. General condition improved somewhat on intravenous fluids and nasal suction. Patient was supported with Digalen and fluids. Subsequent culture was positive for staphylococci. On the 10th day patient was given 80,000 Units of antitoxin, and on the 11th, 40,000 Units; on the 13th day, 500 cc's of blood. Following this, temperature began to decline. Patient was given another transfusion of 500 cc's which improved her general condition. Temperature began to fall by lysis, abdominal pain disappeared, and general condition improved. Subsequent blood cultures were negative. She was discharged on the 33rd day. Probable source of infection was tooth extraction three weeks previous to admission, as there was some local pain about one week following extraction, which patient failed to mention until after her illness.

Case No. 4 (D. E.) A white male, age 16 years, complaining of fever, chills, pain in upper abdomen



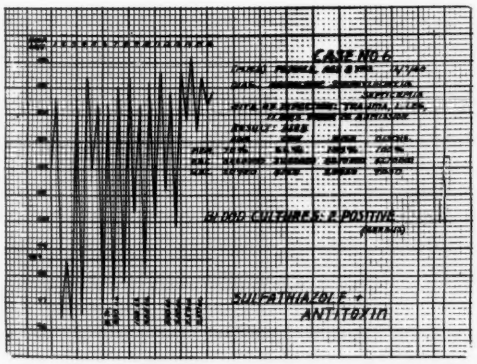
and right upper chest, was admitted to the hospital on May 21, 1940. His illness had begun with an acute sore throat 11 days prior to admission. Physical examination revealed a poorly developed and nourished boy, acutely ill, with throat reddened, dullness and a few rales in right upper chest; spleen, palpable, and the abdomen moderately distended. The patient had been receiving sulfanilamide at home (under care of another doctor). On admission his hemoglobin was 62%, RBC 3,260,000, WBC 15,000; urine negative except for acetone. On the 2nd hospital day blood culture was taken and sulfapyridine therapy instituted. Repeated blood transfusions (six, of 500 cc's each) were given, because of his critical condition. The first blood culture was positive for staphylococci (aureus) after 24 hours, and subculture showed hemolysis. Subsequent culture (taken on the 6th day) was positive for staphylococci, but all following cultures were negative. On the 4th day the patient's temperature began a gradual drop, until on the 9th day it was normal, and did not rise above 99° during the balance of the hospitalization. Patient was discharged on the 16th day in good condition, with a hemoglobin of 80%, and a WBC of 6500.

Case No. 5 (N.I.P.) Female child, age 11 years, admitted to the hospital on November 21, 1940, with fever and prostration. Onset four days prior, when patient developed infection in left side of nose with rapid swelling, elevation of temperature. Patient delirious; at same time mentally dull. Positive findings on physical examination: acutely ill, dull, can be aroused slightly, but unable to cooperate. Proptosis, bilateral, with marked edema of orbital tissues and left cheek; reddened area near inner canthus on left.



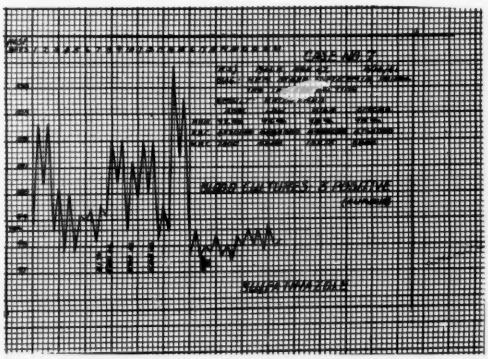
Edema of nose with a couple of yellowish points seen high up in lateral wall on left nostril. Marked chemosis of conjunctiva; eversion of lids; pupils do not react. Facial motions symmetrical so far as can be told, except for edema on left. Lips dry, tongue coated. Heart sounds soft, rather rapid with soft systolic murmurs. Few rales, both bases. Abdomen distended. Pallor and moderate cyanosis of extremities. All reflexes depressed; no Kernig. H. 88%, RBC 4,350,000, WBC 39,600. Blood culture and smear from nasal exudate positive for staphylococci (aureus). Sulfathiazole therapy. Patient died about 8 hours after admission. No blood transfusions were done. Final diagnosis was thrombosis of cavernous sinus, bilateral; septic staphylococcus aureus.

Case No. 6 (M.M.D.) Female child, age 8 years, admitted to the hospital on December 7, 1940. Eleven



days prior had skinned left knee and calf. Pain, some redness and swelling, moderate fever for few days, increasing until temperature was 105° on admission. History negative. Ear or mastoid infection ruled out. Positive findings on physical examination: throat injected, tongue coated, marked acetone odor on breath. Heart sounds soft, with soft systolic murmur; respirations slightly grunting in type, some distant breath sounds and occasional clicking rales in left base posteriorly. Abdomen moderately distended, with tenderness in l.u.q.; lower lobe of spleen questionably palpable. Healing infections, left knee and calf, with very little active inflammatory process. All reflexes depressed; no Kernig. Repeated blood cultures positive for staphylococci (aureus), with hemolysis, and abrasion on leg also gave positive culture for hemolytic staphylococci. Sulfathiazole therapy was begun on 2nd day and continued thru the 13th day; 100,000 Units of staphylococcus antitoxin administered, beginning on the 7th day; and seven blood transfusions were given between the 6th and 15th days. Patient's temperature was constantly elevated, reaching 106.4° at one time. Admission H 70%, decreasing to 62% on the 7th day and rising to 100% on the 13th day. Admission RBC 3,460,000 and WBC 20,950. On 10th day WBC was 4,150 and on the 14th, 9,050, with 4,270,000 RBC. Patient expired on the 15th hospital day.

Case No. 7 (R. S.) White male, age 42, admitted to the hospital on March 14, 1941, with chills and



fever, prostration, and pain in left lower chest. History revealed he had had a number of teeth extracted 6 weeks prior, following which he had developed chills and fever and a few days before admission, a severe "cold." Past history of influenza and pneumonia in 1918. Physical findings showed an acutely ill man, with marked prostration and nervousness. Throat was injected; dullness and some scattered rales in lower left chest, pole of spleen palpable on deep inspiration. Admission temperature was 99.8°, going to 102.6° later that day, and remaining elevated, reaching 104.8° at one time, until on the 16th day when it became normal and remained so during the balance of hospitalization. Admission H 92%, RBC 4,520,000 and WBC 7,000. Sulfathiazole therapy was instituted on the 2nd day and discontinued on the 11th day. Blood cultures taken on the 1st, 3rd and 7th days were positive for staphylococci (aureus); all subsequent cultures were negative. Blood transfusions, of 500 cc's each, were given on the 8th, 10th, 12th and 17th days. On the 22nd day his general condition was good, his chest clear; hemoglobin 95%, RBC 4,760,000 and WBC 8000. He was discharged from the hospital on the 24th day.

CONCLUSIONS

1. Staphylococcus septicemia is probably the most deadly systemic disease.

2. Its instance is greater than commonly thought.

3. The mortality rate has been very high in past; cases reported since the advent of sulfonamide derivatives show marked decrease in mortality rate.

4. Age factor important — greater percentage of recoveries occur between the ages of 15 and 50 years.

5. Most common sites of infection: Carbuncles, skin abrasions, abscesses, furuncles, osteomyelitis, prostatic abscess, infection of nasal sinuses, dental infections, and tonsils.

6. Marked decrease in duration of disease since introduction of sulfonamide derivatives.

7. According to literature 90% of cases are caused by staphylococcus aureus hemolyticus.

8. Complications are common.

9. Treatment: Eradication of any local foci; sterilization of blood stream (sulfonamide derivatives); supportive treatment.

In closing, I may say that although I am neither bacteriologist nor scientist, the conclusion I have drawn from my series of cases is that the future looks much brighter for this type of case, since the introduction of the sulfonamide derivatives.

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Personal communication: 1 case of Dr. F. Garm Norbury, Jacksonville, Ill.

Professional Building,
Jacksonville, Ill.
May 1941

STERILITY

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In gynecology, there are few things to compare with the successful management of human sterility. In majority of instances the couple seeking aid are cooperative, genuinely sincere and deeply appreciative.

It has been said 10 - 12%[1] of all marriages are unfruitful. No doubt this figure is subject to variation due to the individual problem in each case.

Too often there is created unjustly around the female an atmosphere of responsibility. In many cases this is purposely done by the husband to avoid suspicion of his own condition or fitness. Most authors[2] agree on the title of sterile couples because the problem confronting the doctor concerns two people. A man and wife are considered sterile if their union of marital relationship fails to result in conception after 1 - 3 years[3]. We assume of course that their contact was normal. For conception to ensue, the following are pre-requisites: 1) that healthy spermatozoa be deposited in the vagina. 2) that the spermatozoa gain entrance into the uterine cavity and then into the fallopian tubes. 3) that the ovary cast off a healthy ovum. 4) that the ovum enter the fallopian tube and be fertilized thence transported into the uterine cavity. 5) where healthy mucosa affords implantation and development. Some of these five will be lacking to a certain extent in every case of sterility. Therefore, the investigation of a couple should begin with this outline in mind.

Various authors ascribe 30 - 40% of sterility to the male. The cause may be constitutional as systemic disease, endocrine imbalance or poor health. Likewise local conditions such as aspermia, venereal disease, faulty lytic, power of the sperm or fatigue due to excessive coitus. Recent studies seems to emphasize the importance of the germ plasma more than the motility of the sperm.[4] The technique for sperm examination was described by Huhner.[5] In this past year W. H. Carey[6] furnished results of his study on sperm motility and fertility in relation to time and temperature. Much against popular belief he states the unfavorable influence of body tpr. on sperm life.

Given at the Illinois State Medical Society Meeting Wednesday, May 21, 1941.

The remaining 60 - 70% of sterile couples are so because of disturbances in the female. Again, the trouble may be general, local or both thus making it imperative for a careful history including family trait, venereal disease, systemic conditions, local symptoms and the use of contraceptives. With this information in mind we proceed with the physical examination giving special attention to any evidence or endocrine imbalance. Obviously, the pelvic examination must be done in detail. The external gentalia are noted and the following points are ascertained. Does penetration occur? Is the pelvic floor firm? What is the reaction of the vaginal secretion? The highly acid are said to retard semen activity. The highly alkaline will if present for any length of time permit an abnormal vaginal flora to occur and exist to the exclusion of normal flora. It would seem therefore[7] since the semen and cervical secretion are alkaline that a vaginal reaction neutral or slightly alkaline would favor fertility. This however is doubted by some. It is thought that the alkaline secretion from Bartholin glands neutralizes the vaginal acidity at time of coitus therefore we need not be greatly concerned over the normal vaginal acidity. Muench[8] believes that the cervix is entirely mechanical and that the P.H. or presence of pus, blood and bacteria have no effect on the sperm. Personally, I cannot agree because from experience there have been cases of lacerated, eroded or infected cervices which when cared for cured the sterility. In support of the mechanical role the cervix plays, we read a report submitted by F. C. VanTongeren[9] who showed a simple sounding the cervical canal resulted in cure of 85 sterile women to the extent of 85%. The uterus, tubes and ovaries are carefully palpated and evidence of uterine malposition, myomas and etc. should be ascertained. As for the adnaxaes we give detail note to size, mobility and any evidence of previous inflammatore process which may have produced tubal occlusion or adhesions.

In many cases we need look no further than the cervix for the cause of sterility. The correction of stenosis or existing disease is familiar to all. However, in other cases approximately 20% of the trouble is tubal occlusion. Not until 1920 when Rubin[10] gave to us tubal insufflation by the gas method did we have a convenient diagnostic procedure for tubal closure.

The test may be easily carried out in one's office. Not infrequently conception will follow such a test. Apparently it may either temporarily dilate the tube or facilitate contact of the gametes. If the gas mixture fails to go through then we know a tubal closure is present and the location of such an obstruction is found by hystero-salpgography using a contrast media preparation. The technique of this procedure is described in the literature. The relative harmlessness of uterine oil infection was brought out by Sicard and Forestier[11] in 1922. They showed it to be non-irritating to peritoneal surface. However, both minor and major accidents have happened during the oil injection but probably errors in technique or judgment are responsible. The work of Sampson on Endometrial Transplant with reference to the periods should be kept in mind while making the test.

With the occlusion located we are better able to prognosticate as to the form of treatment and results expected. Plastic surgery on the tubes is often disappointing because of the proportion of success varies directly with the distance of occlusion from the uterine tubal junction.

Not infrequently conception follows the operative procedure but in many instances this is an ectopic gestation with the result that Graff[12] believes the procedure to be successful in only 10% of the cases. Success is meant to be a normal term pregnancy.

As a supplement to tubal plastic an important contribution was made in 1931 by Newell[13], namely tubal irrigation with sterile solution after the plastic work to demonstrate tubal patency before the abdomen is closed.

From the endocrine angles many articles are published but to me the condition best treated is one of hypo-thyroidism. Success has been obtained by using pituitary or ovarian medication but not to the extent that thyroid administration has accomplished.

From my own experience the following cases will indicate some of the different types of sterility and their method of treatment:

B. K. Age 31. Married 14 yrs. q 28-35/4-5 days.
9/3/38 (Sterility) 2' retrodisplacement. Partial cervical Stenosis.

9/9/38 Cervix dilated. Ring placed.

10/5/38 Rubin. (closed).
11/2/38 Rubin. (closed).
11/30/38 Rubin (closed) but inflated post coital.
1/5/39 Uterus enlarged. Early pregnant.
4/6/39 Pregnancy progressing nicely and apparently normal. F.M. felt.

F.D. Age 22. Married 3½ yrs. 3 spont. misc.
6-8 wks. q 28/6 days.
3/15/37 Thyroid medication.
5/14/37 Rubin, thru on arriving home.
7/19/37 Inflated, thru immediately, thyroid continued.
5/2/38 2 months pregnant.
12/38 Delivered normal child.

H.O.W. age 23. Married 4 yrs. (sterility for 1 yr.).
q 28/4-5 days
7/7/37 Cervix cauterized for mild cervicitis.
11/23/37 LMP.
8/27/38 Delivered normal child.

A.T. Age 30. Sterility 3 yrs. 1 child age 3½.
3/28/38 Mild cervicitis. Retrodisplacement.
Ring placed. Cauterized. Continued Rx. to cervix & thyroid.
7/13/38 Rubin. Air thru on arrival home.
3/12/39 Delivered normal male.

F. Ky. Age — 25. Sterility 2 yrs. q 30-3/days. Appendectomy with drainage 15 yrs. ago.
2/3/37 Adnaxael masses and cervical erosion.
2/26/37 Cervix cauterized.
5/24/37 to 8/27/37 Rubin with no air thru.
1/22/38 Hystero-salpingogram. Explanation of sterility. See slide.

A. S. Age — 24. Married 4 yrs. Sterility. q 30-35/2-3 days.
1/8/36 Rubin. Air thru at 180.
Local Rx. Rubins plus thyroid. Husband OK.
11/30/36 D & C. Not notable.
Rubin, Rx. and thyroid.
5/5/38 LMP Jan. 24, 1938.
11/5/38 Delivered male, breech. OK.

C.B. Age — 33. Married 16 yrs. 1 child age 15.
10/26/36 Irregular menses, q 14-28/5 days. Sterility.
3' retrodisplacement, left salpingo-oophoritis. Cervical erosion and laceration.
11/7/36 Left adnaxae, ligament shortened, appendectomy D & C, cauterization of cervix.
8/23/37 last period July 20, 1937.
9/3/37 Pregnant.
4/22/38 Induced, female 7 lb. delivered.

C.B. Age — 29. Sterility 3 yrs. q 28/1-3 days.
4/14/37 Cervical stenosis. Retrodisplacement.
4/26/37 Cervix cauterized.
5/17/37 Local Treatment and massaged.
8/6/37 Uterus pregnant.
3/18/38 Delivered normal male.

C. Age — 25. Married 3 yrs. Dysmenorrhea and sterility q 28/3-4 days.
7/3/36 Antiflexion of uterus and cervical stenosis.
7/7/36 D & C and stem pessary.
8/28/36 to 5/24/37 Dilatation.
9/8/37 to 8/26/38 Dilatation plus Rubin.
Pregnancy present. Pr. referred back to family M.D. for delivery.

J.C. age 22, q 28/2-4 days. Pelvic distress. Appendectomy 5 yrs. ago with drainage.
12/18/35 Sterility 2 yrs.
Local Rx. with improvement in feeling at intervals.
11/11/36 Rubin (230) none thru.
11/9/38 Hystero-salpingogram — explanation — closed tubes.

H.C. Age 28, q 30/3 days. Married twice 5 yrs. (sterility).
3/2/28 Chronic P.I.D.
Local Rx. and etc.
8/15/38 Rubin no air thru.
9/15/38 Rubin no air thru.
10/19/38 To have x-ray.
11/20/38 LMP
Pregnant. E.D.C. August 1930. Normal termination of case.

D. Jr. Age 22. Sterility 6 mo. Cramps with periods.
Menst. History. Onset at 12, q 4-6 wks: 3-5 days.
Required bed rest. Exam.: tender over appendix. Ovarian cyst rt. Cervical stenosis.
3/7/39 Appendectomy. Ovarian cyst. D & C, stem pessary.
7/18/39 Huhner test OK.
8/2/39 Tubal inflation, air thru.
9/20/39 Thyroid 3/4 gr. O.D. (No cramps)
10/20/39 Cervix sounded. LMP Oct. 15th, 1939.
7/18/40 Sp. onset of labor. Delivered male 7 lb. 3 oz.
5/10/41 OK. to date. Periods regular.

Mrs. C. R., age 27, married 3 yrs. Sterility 2 yr.
5/26/38 Menst. History, onset at 14, q 28/3-4 days.
Cramps 1st day. (Cervical stenosis & Erosion)
6/1/38 Tubal inflation thru on both sides.
7/5/38 to 1/13/39 Cervical treatments and cauterization.
Huhner test showed no sperm. Husband treated by Dr. Cannady.
7/6/39 Early pregnant. LMP 5/15/39.
2/20/40 Labor induced. Delivered male child, 6 lb. 5 oz.
Epis. & outlet forceps.
To date both normal.

Mrs. L. K., age 28. Married 12 yrs. Sterility for last 8 yrs.
7/5/38 Recent gain in wt. (yr.) Menst. History: Onset at 12, q 21/5 days. Some leucorrhea.
Exam: antiflected uterus, cervicitis mild, thickened adnaxae.

7/8/38 Wass. neg. Condom sperm OK. Tubal inflation (200) no air thru.
8/16/38 Hystero-salpingogram (see report)
5/25/39 LMP April. U. size of fist. A-Z neg.
Pregnant progressed nicely. Delivered female 6 lb. 3 oz. Rotation, transverse.
Baby and mother OK to date.

Mrs. J. H. age 37. Married 15 yrs. Sterility 8 yrs.
9/27/39 Menstrual History: Onset at 13, q 28/4-5 days.
Cramps with periods. Exam: Cervical erosion. Stenosis and multiple myomata.
9/28/39 Tubal inflation, air thru.
10/23/39 Cervical cauterization.
1/10/40 Cervical cauterization.
2/8/40 Tubal inflation — OK.
5/14/40 LMP April 2. Br. sore. Ut. enlarging.
6/6/40 Positive A-Z. BP 145/80.
Pre-natal course complicated by mild hypertension and edema.
1/18/41 Labor induced (3 hr. labor) Outlet forceps and episiotomy. Male child 7 lb. 6 oz. P.P. and subsequent course normal.

C.P. Age 31, Sterility 8 yrs.
11/9/40 Cramps with period. Menst. History: Onset at 14, q 28/4 days. Exam: Cervical erosion with stenosis.
11/18/40 D & C. Cervix cauterized, stem pessary. BMR — 17%.
12/28/40 Stem removed. No cramps. Thyroid 1½ gr. O.D.
1/18/41 Thyroid 3/4 gr. Period OK.
3/8/41 LMP 2/8/41
5/10/41 Pregnant and normal to date.

A. Hel. Age 25. Sterility 3 yrs.
6/19/38 Dysmenorrhea with nausea. Backache for yrs.
Past Health. clean elective appendectomy 4 mo. ago.
Menst. H. Onset at 12, q 35/7 days. Some leucorrhea.
Exam. Cervical stenosis and erosion. 3' retrodisplacement.
6/28/39 Modified Gilliam shortening of ligaments. D & C.
Stem pessary and cautery.
8/2/39 Stem pessary removed. (Husband treated by Dr. Cordonnier).
9/25/39 — 10/14/40 Inflated. Thyroid. C. dilated.
4/30/41 LMP 2/23/41 Pt. pregnant.

A. Fed. Age — 28. Sterility 1 yr.
9/16/40 Severe cramps. Menst. H. Onset at 12, q 21-28/3 days.
Exam: Cervical stenosis.
9/29/40 D & C and stem pessary.
10/11/40 Stem pessary removed. Thyroid 1½ gr. O.D.
11/27/40 Feeling very well. Husband checked by Dr. Cordonnier.
3/13/41 C. sounded. Thyroid and Vit. E.
5/6/41 LMP 3/20/41 Pt. pregnant.

Mrs. W. L. Age 24.
7/7/36 Married 10 mo. Using diaphragm. Menstrual History Onset at 12, q 28/6-7 days. 1st day dysmenorrhea.
Cervical stenosis and slight cervicitis.
6/24/37 Desires pregnancy. No. c.c. for 3 mo.
1/19/38 Cervix dilated with sound.
2/16/38 Rubin. Air thru on rt.
3/16/38 Erosion cauterized. Thyroid 1 gr. Husband sent to urologist.
10/18/39 D & C stem pessary.
11/9/39 Stem pessary removed.
1/11/40 Inflation and thyroid until 6/19/40.
No active sperm. Husband under treatment of Dr. Cordonnier.
1/7/41 Pt. returned with early pregnancy.
5/14/41 Pregnancy progressing nicely.
31 total visits over period of 3 yrs. for pregnancy.

It is seen therefore that each case must be treated as an individual problem. The exact trouble being located by running the gauntlet of a thorough work up as previously mentioned in this paper.

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DISCUSSION

Dr. J. Cordonnier, East St. Louis: Knowing the risk of speaking to a group of obstetricians and gynecologists on a urologic subject, it might be worth while to mention the male aspect of this problem in order to complete the picture. I have worked with Dr. Scrivner on some of these cases and I think I have contributed just a little to produce that much desired effect he has emphasized.

It is a well known fact that many of these sterile marriages are due to the total infertility of either member or the partial infertility of one or both. Therefore, if we can increase the fertility of the male, frequently we can produce a pregnancy where we might not be able to do so in the same woman. I

think it might be well to run over the routine procedures we have followed on the male patients.

In the first place, we take a careful history. Very occasionally we get a history of mumps which is usually not bilateral. There may also be a history of epididymitis. The presence of venereal disease is important and it is well to take a careful history concerning syphilis. Occasionally, we will find that the couple has not been practicing just the right form of sex inactivity and for that reason have not gotten the desired result. Premature ejaculation is an etiologic factor.

Examination of these patients includes a careful inspection of the external genitalia; frequently this will disclose an old epididymitis. Then we check the prostate carefully. The last step is examination of the seminal fluid. This is the most important feature of the examination because it tells the story. I think the method of collection of the specimen is important, particularly from the standpoint of motility. The best method is to have the patient practice withdrawal and collect the specimen in a wide mouthed jar, and bring it to the office immediately. He does not need to keep the fluid at a certain temperature. The specimen is examined microscopically, and I do not go through a lot of fancy examination. No sperm count is done. If there is an adequate number of sperm present that is sufficient, and I do not think we need to go so far as to measure the size of the head of the sperm. After all, it takes only one motile sperm to do the trick and if we find a normal amount of motile sperm we consider the man all right.

As for treatment, we clear up any infection we find present in the genito-urinary tract. If he has a plugged ejaculatory duct we may probe or catheterize it. We try to build him up generally. Hormonal treatment may be of value.

One of our patients had an almost total aspermia. I started him off on gonadogen and we did not have much luck with that material, so I gave him antuitrin S, and that gave the desired result. I do not know much about these endocrine things. The androgens will not produce spermatogenesis, so I think we should use antuitrin S. I have had very little experience with vitamin E in the male.

Dr. Victor D. Lespinasse, Chicago: Sterility or childlessness is a problem that is very close to my heart, as I have burned much midnight oil reading, experimenting and thinking about it.

Dr. Scrivner has brought out most of the salient points, but there are also some important ones that should be emphasized. First, the examination of the semen, which has three main objectives: Presence or absence of spermatozoa; morphology and number of spermatozoa; and motility of spermatozoa, both as to speed and duration.

If spermatozoa are absent from the semen (a condition known as azoospermia), the case is a surgical one and should have one of the following operations performed: direct vasoepididymostomy (Lespinasse), vas-anastomosis (simple or crossed) or the Lespinasse sac operation.

If spermatozoa are present, then their number, size, shape, speed and duration of motility should be determined by appropriate technic, always remembering that the spermatozoa in any of the relationships are not static but vary from day to day, depending upon the individual's activities, diet, sex life and health. They may tend to have a level or average for each individual; they are dependent on the nutritional and endocrine status of the individual.

It is important and essential that any defects in nutrition or endocrine relations should be remedied by appropriate drugs, hormones, vitamines or foods.

One further point should be observed and this point is very important. The semen, to be of most value, should be obtained from a real, desirous, passionate intercourse and not one perfunctorily performed at nine o'clock or five o'clock, the only purpose being to produce a specimen for the doctor. So my instructions are to wait a day or two, and then when the spirit moves for an intercourse, have it primarily for intercourse sake and then when it is completed, take the specimen to the doctor's office. Thus you obtain a real, true specimen and the findings are reliable.

I feel that before any action is taken, and particularly any operations performed on the husband, at least two specimens of a good libido semen should be examined and they should check.

THE CAUSES AND PREVENTION OF BLOOD TRANSFUSION REACTIONS

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The last few years have witnessed a tremendous increase in the therapeutic use of blood transfusion. At the Michael Reese Hospital, for example, the number of transfusions given increased four-fold in the past five years, from an already high figure of 500 per annum in 1936 to approximately 2,000 in 1940. This broadening in the application of blood transfusion has coincided largely with the general acceptance of the indirect method. When the citrated blood transfusion was introduced by Lewisohn[1] in 1915, it was not generally adopted because of the belief that citration impaired the value of the transfused blood and, more importantly, because

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of the fear of the chill reactions. These reactions were thought to be inherent in the citrate method. The intervening years have failed to disclose any striking impairment in the therapeutic value of blood by citration. Recently, it has been convincingly shown[2] that citrate transfusions need carry no higher incidence of febrile reactions than do the direct methods, and that such reactions can be largely avoided by scrupulous cleanliness in the preparation of solutions and equipment. As a result, there has been a rapid and universal swing toward the citrate method of transfusion. Growing out from citrate transfusions have come the blood banks, plasma and serum transfusions, and other innovations that have further augmented the popularity of transfusion therapy.

The facility with which modern transfusions are done, and their very wide employment, carry with them a challenge that we control the incidence of untoward reactions. The purpose of this paper is to describe the evolution of the Blood Transfusion Department of the Michael Reese Hospital, and to trace the gradual diminution in the incidence of post-transfusion reactions.

For a number of years prior to 1937, the Strauss[3] modification of the Lindeman method of transfusion was used routinely in the Hospital. This method employs multiple large syringes which are alternately filled from a cannula in the vein of the donor and immediately emptied into the vein of the recipient. The syringes are successively rinsed in water, saline and citrate solutions. This study of the incidence of blood transfusion reactions was begun during the time that the above method was being used, with an analysis of the incidence of reactions in a series of 500 consecutive transfusions given during the year 1936.

When the citrate method was re-introduced into the Hospital, there was, almost overnight, a complete turn from the direct to the indirect method. The first citrate transfusions were done by essentially the original Lewisohn technique. The blood was drawn from the donor into a beaker or flask containing citrate solution, and carried to the patient's room, where it was infused by gravity, using several thicknesses of gauze to filter out small clots. As was to be expected, reactions occurred which called for the development of better methods. A second series of 500 consecutive transfusions drawn from this period was analyzed for comparison of the incidence of reactions.

To improve the results of blood transfusions, a new transfusion department was organized. It was apparent from the start that there were numerous potential sources of error and disaster in the multiplicity of preliminary steps associated with the operation of blood transfusion. The first requirement, therefore, seemed to be the centralization of all of the component steps of the procedure into one department, under the sole and unified responsibility of a single administrator. Obviously, if the typings and compatibilities were done by one group, the solutions made up by another and sterilized by a third, the equipment cleansed and assembled by still another, *et cetera*, it would be impossible to place responsibility or to determine the source of reactions, if they did occur.

The second requirement seemed to be special quarters and personnel allotted exclusively to this important work. Bleeding rooms were provided for the sole purpose of drawing blood for transfusions, and space was set aside for the cleansing and assembling of the apparatus. Full-time technicians and their assistants were assigned to carry out these functions. In this transfusion center, all of the phases of the operation, from the washing of the tubing to the bleeding of the donor, were done. To obviate errors in compatibility, well-trained technicians were made available 24 hours a day. Blood groupings were done, of course, on all recipients and prospective donors, and reciprocal cross-agglutinations of cells and sera of both patient and donor. Only high-titer testing sera were used for typing, to prevent errors from the presence of weak agglutinins.

In order to reduce the possibilities of contamination with foreign protein material, which might be capable of giving rise to pyrogenic reactions, commercially prepared vacuum flasks containing citrate solution were adopted. These flasks are sealed and sterile, and are free from pyrogenic contaminants. The technic of their use is very simple. Blood is drawn by vacuum through a short length of rubber tubing from

the cubital vein of the donor, into the closed flask. When the needle is withdrawn from the stopper, a sealed, sterile bottle of citrated blood is available for immediate infusion, storage, or conversion into serum or plasma, as may be desired. Injection of the blood is done by gravity through an infusion set which is equipped with a drip-chamber and a fine-gauge metal filter to remove minute clots.

The Transfusion Department was made responsible for the maintenance of adequate active lists of professional donors. Rigid requirements were established for persons desiring to give blood for transfusion. Only healthy young males with good veins are selected. A careful history is taken of each candidate to rule out allergy, tuberculosis, malaria and syphilis. Record is made of previous infections from which the donor has recovered, for use when immune transfusions may be desired. A complete physical examination is done, including Wassermann and Kahn tests, complete blood counts, and differential blood smears. No professional donor is used oftener than once in six weeks, and the serological tests are repeated every six weeks. In addition, the genitalia and the oral cavity are inspected immediately before blood is drawn for transfusion, in order to rule out recent syphilitic infection. Donors must remain on call, and be within 20 minutes reach of the hospital. It is thus possible to deliver blood to the patient within 30 minutes from the time the call is received in the transfusion center.

When friends or family-members wish to act as donors, such careful selection cannot be made. Nevertheless, in addition to the typing and compatibility determinations, an immediate Kahn test is done and, if possible, the genitalia and oral cavity are inspected for evidences of early syphilis.

Special attention is given to the problem of cleansing and assembling transfusion apparatus. As has been stated, full-time employees carry out these tasks in space set aside for the purpose. Metal and glass parts are thoroughly washed in acid solution and distilled water. Rubber tubing is boiled, first in weak sodium-hydroxide solution, then in distilled water.

In order to be sure that no pyrogenic foreign material remains in the equipment, a sample of the final washings are subjected to a "pyrogen test." This consists of injecting such fluid into the veins of rabbits. If protein contaminants are present, the animal exhibits a typical chill and fever reaction, identical with that seen in human beings. This constitutes an accurate biological check on the safety of the equipment.

A system of checks and double-checks has been developed to prevent erroneous labelling of the blood samples when several transfusions are being prepared at the same time, and to prevent injecting the blood into the wrong patient. Furthermore, a careful follow-up has been instituted to record the post-transfusion course. This not only permits an accurate determination of the incidence, type and severity of reactions, but also makes it possible to check back and trace the source so that it may be eliminated.

BLOOD TRANSFUSION REACTIONS

We have classified our reactions under three headings, the pyrogenic, allergic and hemolytic. Pyrogenic reactions constitute far the greatest number of post-transfusion disturbances. They consist of a sharp elevation of temperature, coming on during or shortly after a transfusion, with or without an accompanying chill. If the maximal temperature elevation exceeds two degrees, it is classed as a major reaction, otherwise it is considered to be minor. These chill and fever reactions are not, of themselves, dangerous. However, the added load they may impose upon patients already critically ill cannot be disregarded.

It has been convincingly shown that chill reactions are almost invariably due to the inadvertent injection of foreign protein material into the blood-stream. The source of protein contamination may be bits of old blood left in the tubing or needles, powder from the tubing, or pyrogenic material incompletely removed from the water during the process of distillation. The potential sources are, therefore, legion, and only by scrupulous care and everlasting vigilance can such reactions be averted. When they do occur, prompt revision of the entire process, with repetition of the pyrogen test, is in order, so that the source of error may be detected and eliminated.

Allergic reactions are rarely serious. They

usually manifest themselves by urticaria, less frequently by asthma or other visceral disturbances. Such reactions have been known to occur following repeated transfusions from the same donor, or from donors with definite allergic tendencies. Blood drawn soon after the donor has eaten may also give allergic reactions. Allergic persons, therefore, should not be used as blood donors and, whenever possible, blood should be drawn during the fasting state.

Hemolytic reactions are always serious, and may be fatal. They are due, as a rule, to the transfusion of incompatible blood. Fortunately, with the use of careful typings and compatibility tests, such reactions are extremely uncommon. *No such reactions have occurred in the entire series of transfusions here reported,* nor have any been seen during the entire duration of the Transfusion Department. The clinical manifestations of hemolytic reactions are severe lumbar pain, dyspnea, chills, varying degrees of collapse, vomiting, followed by jaundice and hemoglobinuria. These may lead to oliguria or anuria, and death from uremia may ensue. The prevention of this type of reaction demands utmost care in the performance of the typing and compatibility tests. Emphasis is placed upon the use of only high-titer testing sera. All questionable bloods should be rejected. Cross-typings of both cells and serum of donor and patient should be done. These precautions will obviate the danger of sub-group agglutinations and, as will be shown later, will permit the safe use of universal donors.

Incidence of Reactions. In order to determine the actual incidence of blood transfusion reactions, and to compare this incidence with successive modifications in the technique of transfusion, we have studied five series of 500 transfusions each. As has been stated, the first series was drawn from the period in which the direct method was being used, and the second from the period of "open" citrate transfusions. A third sample of 500 cases represents the early experience in the new transfusion center. A fourth series was taken during the second year of the activities of the center, and a final 500 recent transfusions represent our present incidence of reactions.

The results of this study are seen in Table I. It will be noted that the direct method gave a rather high incidence of reactions (9.6%), chiefly of the pyrogenic type. This, in retrospect, is not surprising in view of the fact that the importance of removing pyrogens from equipment and solutions was not appreciated. It is a trib-

TABLE I

INCIDENCE OF REACTIONS FOLLOWING TRANSFUSIONS

	Pyrogenic Reactions			Allergic Reactions	Hemolytic Reactions	Total Reactions
	Major	Minor	Total			
Series I 500 Consecutive Direct Transfusions (multiple syringe) 1936	25 (5.0%)	14 (2.8%)	39 (7.8%)	9 (1.8%)	0	48 (9.6%)
Series II 500 Consecutive Indirect Transfusions (open method) 1938	30 (6.0%)	5 (1.0%)	35 (7.0%)	2 (0.4%)	0	37 (7.4%)
Series III 500 Consecutive Indirect Transfusions (Early New Method) 1939	19 (3.8%)	7 (1.4%)	26 (5.2%)	10 (2.0%)	0	36 (7.2%)
Series IV 500 Consecutive Indirect Transfusions (Recent New Method) 1940	8 (1.6%)	6 (1.2%)	14 (2.8%)	5 (1.0%)	0	19 (3.8%)
Series V 500 Consecutive Indirect Transfusions Feb. to May, 1941	3 (0.6%)	8 (1.6%)	11 (2.2%)	4 (0.8%)	0	15 (3.0%)

ute to the method, which permitted but little contact of blood with foreign surfaces, that reactions were not more numerous. The first citrate transfusions showed, surprisingly, a slightly lowered incidence of reactions (7.4%). The multiple potential sources for these mishaps has been mentioned. Nevertheless, there was probably less contact with impure solutions, resulting in the lowered incidence of febrile reactions.

The first 500 transfusions under the present set-up (Group III) were somewhat disappointing. Although there was some reduction in the number of reactions, this was not as striking as had been anticipated. However, adequate records and the use of the pyrogen test permitted a progressive elimination of the various responsible factors. This is reflected in the fourth series, in which the total incidence of reactions was 3.8%, and the major febrile reactions had been reduced to 1.6%. The last series of 500 recent consecutive cases shows a total incidence of slightly over 2% reactions, and *only 0.6% major pyrogenic reactions.* This very creditable figure proves the possibility of reducing transfusion hazards to a minimal figure. With continued alertness and further improvement in technique, there is every reason to expect still more reduction in transfusion reactions.

Further analysis of a series of 1,000 consecutive transfusions to determine the relationship between the frequency of reactions and the disease state for which transfusion was done indicates that certain pathological conditions predispose to the various types of reaction. (Table II) Thus, blood dyscrasias gave a much higher frequency of pyrogenic reactions than did other diseases, while ulcerative colitis gave an excessive number of allergic reactions. Septic states, generally, seemed to predispose to febrile reactions, suggesting that these persons are sensitive to minute and otherwise innocuous quantities of pyrogenic material. Chill reactions in these patients could be prevented by giving multiple small transfusions, none exceeding 250 cc. of blood.

The incidence of reactions following transfusion of blood from universal donors, as compared with blood from donors of the same blood group as the patients, is revealed in Table III. It will be seen that the incidence is actually lower in the former group. We believe, therefore, that it is safe to administer universal donor blood to patients of other blood groups provided, by the use of high-titer testing sera, the correct type of the donor's blood is assured. Careful direct compatibility tests between recipient and donor bloods must be made to rule out anti-o agglutinins in the patient's serum.

TABLE II

THE INCIDENCE OF TRANSFUSION REACTIONS IN PATIENTS CLASSIFIED ACCORDING TO DIAGNOSIS AND DEPARTMENT

		No. of Transfusions	Pyogenic Reactions	%	Allergic Reactions	%	Total Reactions	%
Medical Patients	Gyne. Surgery	56	4	7.1	1	1.8	5	8.9
	Orthoped. Surgery	29	0	0.0			0	0.0
	All other Surg. Depts.	415	10	2.4	3	0.7	13	3.1
	Blood Dyscrasias	45	8	17.7			8	17.7
Surgical Patients	Ulcerative Colitis	50	1	2.0	5	10.0	6	12.0
	All other Medical Diseases	340	13	3.8	5	1.4	18	5.2
	Obstetrics	65	4	6.1	1	1.5	5	7.6
	Totals	1,000	40	4.0	15	1.5	55	5.5

TABLE III

INCIDENCE OF REACTIONS IN PATIENTS TRANSFUSED WITH BLOOD OF THE SAME TYPE AND IN THOSE RECEIVING BLOOD OF A DIFFERENT TYPE (UNIVERSAL DONOR BLOOD)

	Number of Transfusions	Pyogenic Reactions	Allergic Reactions	Total Reactions
Patients and Donors of Same Blood Group	780	35 (4.5%)	12 (1.5%)	47 (6.0%)
Patients and Donors of Different Blood Group	220	5 (2.2%)	3 (1.4%)	8 (3.6%)
Total	1,000	40 (4.0%)	15 (1.5%)	55 (5.5%)

SUMMARY

1. The control of blood transfusion reactions demands centralization of responsibility over all of the component steps of the operation, careful supervision of the numerous potential sources of

error, and everlasting alertness to trace and eliminate factors causing untoward reactions.

2. The organization of a Blood Transfusion Department for a general hospital is described.

3. Five series of 500 transfusions each are analyzed, tracing the gradual elimination of the causes of reaction with corresponding improvement in the results.

4. The pyrogen test is an effective aid in controlling the preparation of solutions and equipment.

5. Reactions following transfusion are classified as pyrogenic, allergic and hemolytic.

6. Pyrogenic reactions, characterized by chills and fever, are most frequent. They are almost invariably due to the presence of foreign contaminants in the solutions or apparatus. Sepsis and blood dyscrasias predispose to pyrogenic reactions.

7. Allergic reactions are usually urticarial in nature. The chief causes are donors with allergic tendencies and blood taken shortly after the donor has eaten. Patients with ulcerative colitis seemed to be predisposed to allergic reactions.

8. Hemolytic reactions are due to the infusion of incompatible blood. This can be avoided only by careful preliminary typings and reciprocal cross-matchings, the use of high-titer testing sera, and the rejection of all bloods giving questionable agglutinations. There were no hemolytic reactions in our series.

9. Universal donor blood gave no higher incidence of reactions than did blood of homologous groups.

10. Our statistics reveal a reduction in the reaction incidence from 9.6% to 2.2%. Only 0.6% of the latter figure were major pyrogenic reactions. Our experiences point the way to further reduction in the incidence of transfusion reactions.

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DISCUSSION

Dr. Frederick Christopher, Winnetka and Evanston: I would like to ask Dr. Zimmerman if he has ever encountered an instance where, with the same donor, there was no reaction in the first instance on the part of the recipient and on the second occasion an allergy has been shown that was not present in the first case.

Dr. C. Paul White, Kewanee: Does the time element enter there?

Dr. Zimmerman: We do not use the same donor oftener than once in six weeks.

Dr. Week: We have had to use them more often than that.

Dr. Zimmerman: I am not in position to know whether the time element would be a factor.

Dr. White: I have had the experience of using the same donor within a week and ten days and having no reaction and then using him three months later and getting a reaction.

Dr. R. A. Matthies, Hinsdale: Does a reaction early in a transfusion have any especial significance? I have recently seen reactions occur after 80 or a 100 c.c. of blood have been infused, and wondered if reactions occurring regularly after such amounts have been given were of any special significance in determining the cause.

Dr. Zimmerman: In answer to Dr. Christopher's question, I think that is the typical set-up which predisposes to allergic types of reaction, namely, the use of multiple transfusions from the same donor where no allergy was noted in the first transfusion but may be observed in subsequent transfusions.

Needless to say, when the same donor is used more than once, the typing and compatability are repeated before each successive transfusion.

One question was whether reactions occurring early in the course of transfusions are of any significance. I would feel that a reaction occurring early in transfusions is of utmost significance and could very well be precursor to a very serious hemolytic type of reaction. Therefore, when any type of reaction takes place during the course of a transfusion, the transfusion should be interrupted at once and, if necessary, adrenalin or other stimulants administered.

With reference to the methods used, I thought I had made it clear. In the last several years, since 1939, we have used the Baxter solutions and vacuum flasks exclusively. By this method a needle is inserted through a stopper into a vacuum bottle in which there is citrate solution. There is a valve attached to the needle and a bleeding needle attached to a short length of rubber tubing. The needle is inserted into the patient's vein, the valve opened slightly and then the vacuum within the bottle draws up the blood from the donor into the bottle. When the needle is withdrawn, one has a closed, sterile flask of citrated blood which can be put on the shelf, can be used im-

mediately, or can be converted into blood or plasma as desired.

Injection is through the infusion apparatus. There is a drip chamber and also a fine-gauge metal filter which acts to filter out any small clots should they happen to form.

Dr. Chester R. Zeiss, Chicago: In regard to using the Baxter method, with cross-matching and accurate typing I do not see why a reaction should occur if the individual were not in a toxic state.

Dr. Zimmerman: I pointed out that there were innumerable factors responsible for reactions. Cross-typing will eliminate possibilities of a hemolytic reaction, and we have found in our series no hemolytic reactions. However, I will give you just a few examples of the causes of groups of reactions that we have had with the use of Baxter solution.

At one time we had a group of six, eight or ten transfusion reactions and then it was discovered that a new batch of tubing had been introduced and the boys entrusted with the work of cleansing the tubing had not removed all soluble material present in the tubing. Recently, the last aggregate of six or seven reactions that we had were extremely difficult to trace. We finally found that in cleansing the valves they were not taking the valves apart; they were merely flushing them through with several washings of distilled water and those washings did not give a pyrogenic reaction. But when those valves were unscrewed, on the inside there was a small chamber in which there were small flecks of clotted blood. When those were cleaned out with a brush, the reactions promptly disappeared.

A break in technic anywhere along the line will give reactions of a pyrogenic nature, even though the cross-matchings and compatabilities are perfect and even though one uses the closed, sterile flask method of transfusion.

We would not have too many beds for tuberculosis but too few if funds were available for adequate case finding in most areas. L. J. Webster, M.D., Minn. Med., Mar. 1941.

Tuberculosis is a deep-seated social problem beset with economic and administrative difficulties not encountered in any other disease. Charles R. Reynolds, M.D., Bull. Nat'l. Tuber. Assn., Aug., 1940.

The trend toward surgical treatment of tuberculosis is perhaps the most significant and far-reaching change which has come about in the tuberculosis hospital field. *This has involved changes in design and equipment* of the hospital, in the organization by the staff, in *provision for nursing of surgical cases, and development* of closer relations with general hospitals. Wherever *the tuberculosis hospital is not prepared to meet* the demand for better operating rooms, laboratories, and roentgen ray equipment, the facilities of the general hospital must be utilized. Editorial, Penna. Med. Jour., Mar. 1940.

THE CLIMACTERIC AND THE *MENOPAUSE*

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The words Climacteric and Menopause are frequently used synonymously. However, they are not true synonyms.

The life of woman is divided into three sections:

1. Growth period, in which the entire organism undergoes progressive changes. As far as the gynecologist is concerned, the most important changes are in the generative organs, and particularly the endocrine glands.
2. Maturity or menacme, the child bearing period.
3. Senescence, the period under discussion at this time.

I wish, first, to briefly discuss the clinical manifestations of the climateric. These may be divided into three phases:

a. *Nervous symptoms.* Those women with stable nervous systems do not develop neurotic or psychotic manifestations during the climacteric. Those who have suffered from menstrual headache and, or from dysmenorrhea, the menopause comes as a delightful relief. In spite of this, however, the realization of advancing years is more or less a shock. Then too, the fear of decreasing feminine attractiveness with its concomitant results weigh heavily on the mind of some to the extent of producing certain psychotic symptoms. The old superstitions are many times responsible for these fears.

b. *Circulatory symptoms* are the result of vasomotor instability caused by endocrine imbalance. The symptoms are hot flashes in 60 to 90% of the women, tachycardia, arythmia, dyspnea, and choking sensation.

c. *Local pelvic symptoms* are atrophy of the genitalia, loss of ovarian function, senile vaginitis. The vaginal mucosa may become ulcerated and bleeding. The loss of tone in the pelvic structure may result in prolapse, cystocele, and rectocele.

THE ENDOCRINE BASIS OF THE CLIMACTERIC

1. *The changes in hormone production.*
   a. Decreased blood levels and urinary excre-

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tion of estrogens. The decrease is rarely 100%; some still persists. The remaining part is suspected to be partly of dietary origin and partly of extra-ovarian (?) origin.

b. Increased blood levels and urinary excretion of gonadotropic hormones.

The normal woman excretes small amounts of gonadotropin on certain days of the cycle; the menopausal or castrate woman excretes it continuously and at much higher levels. The gonadotropin is definitely of pituitary origin and consists mainly of follicle-stimulating factors, in which respects it differs from the gonadotropin of pregnancy origin, which is mostly luteum-stimulating, and present in enormously high concentration.

c. Other pituitary hormones (thyrotropic, and adrenotropic) have been suspected to be increased in output also. The evidence, however, is not so good as for the above.

2. *What is the primary cause of these changes?*

a. The primary pathology in the climacteric seems to be a "senescence" of the ovary, *which undergoes atrophy and fails to* develop any more ova. That the deficiency is primarily ovarian is indicated by the facts that;

1. The menopausal ovary appears unable to respond to the increased production of gonadotropic hormones by the pituitary.
2. The menopausal ovary is unable to respond to administered gonadotropic hormone (pregnant mare's serum.)

3. *What caused the changes in sexual characteristics?*

a. There seems little doubt that the amenorrhea, genital atrophy, and loss of secondary sexual characteristics are the *direct result of ovarian hormone* deficiency. They can all be restored by the administration of *estrogenic preparations.*

4. What causes the subjective symptoms? *(Vasomotor and emotional instability, etc.)*

a. A personality or psychic factor probably *influences the degree of subjective symptoms,* but does not initiate them.

b. Estrogen deficiency.

Attempts to correlate blood estrogen levels with the severity or duration of symptoms *have been unsuccessful. For* example, many women exhibit climacteric symptoms before the estrogen level falls sufficiently to interrupt menses; some women continue to excrete considerable quantities of estrogen, yet have severe symptoms; symptoms may not occur at all, although menses cease; *frequency of flashes is not related to the blood estrogen level.* Some believe this indicates that estrogen deficiency is not the cause of the subjective symptoms, but the poor correlation may be the result of the influence of the personality factor, for example, and the notorious unreliability of the blood estrogen assay.

c. Gonadotropic excess.

A rough correlation has several times been reported between the gonadotropic level and the severity of subjective symptoms. This has led some to *believe that the gonadotropic hormones* are directly responsible for the symptoms.

However, the latest, most extensive, and by far the most accurate and reliable investigation reveals no relation at all between the gonadotropic level and the age, menopause symptoms, hysterectomy or uterine involution, but the correlation is very good *with the cyclic state.* Women with normal cycles show a very low level, *women with irregular cycles show fluc*tuating levels, and acyclic women (menopause or castrate) show uniform, 20-fold increases. Of considerable significance is the fact that the *high levels persist indefinitely (in* contrast to symptoms) and that successful therapy *with estrogens only* partially reduces the high gonadotropic level. Hence the theory that the symptoms are due to gonadotropic excess is scarcely tenable.

THE DIAGNOSIS OF THE MENOPAUSE

The diagnosis of the climacteric is not difficult. Occasionally one has to decide whether he is dealing with menopause or pregnancy. Time, of course will answer this question. Friedmann test may be of service, however, too much credence must not be placed on a positive result, because in the menopause the absence of ovarian hormones cause a relative increase of anterior pituitary gonadotropic hormone.

The important consideration in the diagnosis is the danger of overlooking some condition that is not strictly a part of the climacteric. The question of "menopausal bleeding" is misleading. All uterine hemorrhage at this time may also be found in earlier life. There is, however, an increasing tendency to malignancy and other causes of bleeding, such as: bleeding fibroids, polypus, erosion of the cervix, and endometritis.

The extent of change in Ph in vaginal secretion was invariably associated with estrogen deficiency. J. S. Beilly,[1] discusses Ph of vaginal secretion as an index of ovarian activity in hypo-ovarian states.

General Management: It is of first importance to remember that during the fifth decade diseases affecting the joints, heart, kidneys, blood, blood vessels, pelvic organs, and endocrine glands are likely to appear. The management of the menopause must then include both general and specific measures.

The first consideration should be given to the general health. Proper relation of rest to exercise should be secured.

Bearing in mind the tendency to the so-called "middle-aged spread," the diet should be regulated to control that, and at the same time be planned to provide an adequate amount of nutrition. Mental and emotional rest is as important as physical.

Specific Treatment: Endocrine Therapy. Estrogenic hormone is the primary agent in endocrine therapy. This is on the market under several trade names. Only standardized preparations should be used.

The dose seems to be a moot question, from 2000 International Units up, are suggested by various clinicians.

The question of hypodermic or oral route has also been discussed. The concensus of opinion seems to be hypodermic to start the treatment, later followed by oral.

I like to start with 2000 I. U. daily by hypodermic, and if this does not relieve the symptoms, increase the dose until relief is secured, then follow with oral medication to obtain the desired result.

As early as 1896, the Landau Clinic in Berlin advocated the use of ovarian substance in the treatment of menopausal disturbances. Many clinicians believed that such treatment was of value. Soon, however, the physiologists proved that many of the substances used were practically inert. The next progress was the discovery of internal secretion in the ovary, with the result that now we have the hormones available in such form that the laboratories have proven their potency in standardized preparations. Clinically, we still do not know the mechanism by which vasomotor disturbances are produced, neither do we know with anything like precision, the required dose for a given patient.

Preparations:

1. Estradiol, estriol, and estrone, given intramuscularly, usually initially, but frequently oral maintenance doses are used.
2. Stillbestrol is given orally throughout. This synthetic estrogen is not yet on the market, but is up for consideration for acceptance. It is remarkably cheap, and very potent. Definite side effects are nausea, vertigo, and vomiting.[3] Conclusive evidence is now at hand to the effect that these side-effects are due to the fact that it is so readily absorbed and transported. The rapid absorption results in the higher concentration in the body fluids. Equally excessive doses of natural estrogens will produce the same reactions.[3] Moderate but effective doses do not produce the side action.
3. Progestin is expensive and not as effective as estrin.
4. Progynon-Benzoate. Dosages of 4000 Rat Units, totalling 24,000 R. U. proved adequate in rapidly abolishing hot flashes, and controlling fatigability, depression, headaches, palpitation, and dizziness as well, and also some digestive disturbances and joint symptoms. The duration of relief varied from one to eight weeks.[4] At the same time there were progressive changes in vaginal smear and biopsy.

Duration of Therapy: Permanent relief is not obtained unless therapy is continued for some time. Withdrawal of therapy results in return of symptoms in weeks or months. If maintenance dosage is gradually reduced, therapy may

finally be stopped without symptoms in two or three years for the average patient.

Sevringhaus[5] mentions two situations in which reduction in dosage is indicated. One is the occurence of vaginal bloody flow, the other is the stimulation libido to an uncomfortable degree.

Effects of Therapy: There is pretty general agreement that the therapy is highly effective. L. H. Hawkinson[6] Brainerd Clinic, Minn., reporting one thousand consecutive cases claims 84% completely or partially improved, 5% unimproved, and 11% doubtful, or patients who did not return for check-up or more therapy. Five hundred patients received estrogenic preparations in oil, 10,000 to 50,000 I. U. After considerable trial, it was found that 10,000 I. U., every three to four days for about twelve injections controlled the symptoms. Two hundred and ten patients were treated with oral preparations, the dosage ranging from 180 to 6000 I. U. daily.

The majority of symptoms were relieved for from fifteen to sixty days. He also claims that flashes, chills, excitability, depression, palpitation, and insomnia clear up in two to three weeks. Sweating, fatigue, lassitude, and headaches require somewhat longer treatment.

There was some return of uterine bleeding in 22%. There was also marked restoration of breasts and external genitalia.

Involutional melancholia, pruritus vulvae, senile vaginitis, respond well. There was no response of obesity or arthritis.

Menopausal hypertension responds, but not hypertension due to other cause.

Robert Schaefer,[7] reports thirteen subjects treated for hypertension. In these cases, there was a substantial reduction of blood pressure as well as amelioration of associated symptoms. Theelin, in varying doses was given depending upon the severity of the symptoms.

Danger of Therapy:

a. None noted.

b. Danger of inducing carcinoma is remote even theoretically, and clinical experience has given no cause for worry on this score.

Treatment of Nervous Manifestations: Treatment should consist of potent estrogen in oil, 2,000 I. U. every other day until the patient shows definite improvement (absence of depression and psychosis); then give 1,000 I. U. intramuscularly three times a week for from one to two months, and if the improvement continues, gradually taper off the dosage. If symptoms should recur some time after the cessation of treatment, it should be reinstituted. Along with the injections of estrogen, it may be well to give the patient effective doses of mild sedatives four times a day, such as Chloral Hydrate, Elixir or Phenobarbital and Sodium Bromide, to quiet the nervous system until the endocrine treatment becomes effective. Some hypnotic tablet may be given at bedtime for sleep.

Roentgen treatment of the ovaries to inhibit or destroy their function is recommended by some for hypoovarian states, if used the treatment should be very light. Others believe that it is unnecessary, as the ovaries are hypofunctioning at present, and there is a possibility that the ovaries might have some other activity than Graafian Follicle development and ovulation.

Be patient and persistent with the treatment and considerate of the patient, for she is physiologically ill. One must be sure that there are no other ailments, as the patient must be treated as a whole, and not as an aggregation of glands.

Vaginal smears: As an indication of Ovarian Follicular Hormone action in the Menopause. (Papanicalou and Shorr[8]).

Advanced menopausal cases show the presence of numerous compact round or oval cells which possess large well-preserved neuclei. These cells are derived from the deeper layers of the vaginal mucous membrane and are rarely seen during the normal menstrual cycle.

The relative scarcity of superficial cells and abundance of deep cells are the result of thinning of the epithelium and absence of well developed superficial zone.

Leukocytes are also numerous as the result of unhampered migration through the thin epithelial wall. Erythrocytes are present and point to a type of bleeding known as menopausal atrophic bleeding.

Cases of more moderate atrophy show a less well-defined picture. The cells are not distinctly outlined and tend to be clumped, and there is evidence of cytoclysis and the presence of bacteria. These are the cause of a dirty, smudgy appearance.

While there is quite a variation in the appear-

ance of the menopausal smear, the changes induced by treatment are remarkedly uniform. The characteristics are disappearance of the leukocytes and erythrocytes, and the replacement of all other cells by flat well outlined cells, many of them cornified with pyknotic neuclei, which give a clean, clear cut appearance to the slide.

SUMMARY AND CONCLUSIONS

The type of patient determines to a large extent the severity of nervous symptoms. Circulatory symptoms are dependent upon endocrine inbalance. There are definite pelvic changes.

The endocrine basis of the climacteric seems to be well established. We have attempted to show the causes of various changes and subjective symptoms. The efficiency of endocrine therapy is well proven, particularly by the changes produced in the vaginal mucosa.

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DISCUSSION

E. Graham Evans, Aurora: Dr. Nash is to be congratulated on his excellent survey of the climacteric. It was particularly pleasing to see his emphasis on the management other than specific therapy. It has been known for many years that ovarian products which were physiologically inert would cause improvement of the symptoms and at the same time we find today that physiologically potent products will at times have no effect. This is due to failure of treatment of the psychological aspects of the climacteric. Certainly no mode of therapy is complete without one or more careful discussions of the physical changes which make up the entire picture. As a woman approaches the climacteric she is frequently very much upset by misinformation which is given her at her bridge clubs. The symptoms are usually most exaggerated as she only hears of the severe reactions and has little knowledge of the fact that many women can go through the entire change with practically no symptoms. She frequently is concerned that she may lose her attractiveness and her libido and as she becomes more upset mentally this sets up a vicious cycle whereby her symptoms become exaggerated and if the true nature of the condition is properly explained and the woman is assured that the diminishing function of her ovaries will not interfere with her sex life or her attractiveness, this vicious cycle which aggravates her condition can usually be broken up and with the assurance that the use of estrone to relieve the specific symptoms, the patient can be brought into a much better mental state.

Diet to control the weight gain which as Dr. Nash stated, is not affected by estrone therapy, is also extremely important.

As far as the specific therapy is concerned I have nothing further to add with the exception of noting that a large percentage of cases can be adequately carried along on oral therapy although this is usually best preceded by a series of injections. Stilbestrol on which acceptance has still been delayed is certainly the most potent of all the forms of therapy although its reactions may be distressing. Other of the commercial oral preparations will usually suffice to control the case after a preliminary series of injections and certainly a part of the efficacy of the oral preparation is getting away from the use of hypodermics which are frequently disturbing to the patient.

Exception must be taken to the statement that the danger of inducing carcinoma is practically nil.

I wish to quote a brief excerpt from a recent article by E. A. Doisy,[1] one of the pioneers in estrogen studies, who states as follows: "There seems during the last five years to be a definite trend toward massive dosage with both natural and synthetic estrogens. Perhaps this will eventually prove to be satisfactory, but in the meantime it does not seem wise to be incautious. Within another five or ten years any subacute damage which may have occurred will begin to make its appearance.

"The increased incidence of malignant change following administration of estrogens to cancer-susceptible strains of animals serves as a definite warning. While it is true that the dose per kilogram of body weight is much higher than the amounts commonly used therapeutically in the human patient and that the most pronounced carcinogenic reactions are obtained in susceptible animals, still it seems unwise to ignore the possibility of accelerating or starting the growth of cancer in susceptible persons. Certainly, the treatment of patients having cancer should be undertaken with a full recognition of the possibility of untoward results."

Dr. J. P. Greenhill, Chicago: Dr. Evans has most ably described the preparations used in the treatment of menopausal disturbances. Dr. Nash I am sure had a similar discussion in his paper because it is very important.

When we think of therapy for menopausal disturbances we think first of endocrine products. That is a serious mistake. We should consider the patient as a woman and not as a group of glands. Therefore, we should first treat the mind by a heart to heart talk about the change of life.

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1. Doisy, E. A., Glandular Physiology and Therapy: The Estrogenic Substances. J.A.M.A. 116: 501-505, February, 1941.

Personally I feel the best results with the estrogens are obtained by giving large doses at first and then tapering off. Following this in most instances the patient can be carried along by oral preparations. Unfortunately there is no standard dosage. Some products are sold in international units, others in rat units and still others by weight in milligrams.

This leads me to a discussion of the matter of vaginal smears. These are excellent when you can properly interpret them. To me they have only academic interest for estrogen therapy. It does not matter what the result of the smear shows so far as therapy is concerned. I think the important criterion should be the patient's subjective feelings.

Now a word about stilbestrol which cannot be purchased because the United States government has refused to sanction its sale. This is because of its toxicity. Some women cannot take the drug because of the disagreeable symptoms it produces. In spite of this the drug is remarkable not only for relieving the symptoms of the menopause but also because it is very useful in stopping lactation when this is desired. Strangely enough, very few women in the puerperium have any disagreeable symptoms from it.

Dr. Evans mentioned the problem of carcinoma in relation to estrogenic substances. We are not sure whether estrogen produces carcinoma in the human being. I suggest that any woman who has had carcinoma of the breast or who has a bad family history of carcinoma, should not be given estrogen for menopausal symptoms. These women can be treated almost as well by means of testosterone propionate. Women who have bleeding following or during estrogen therapy and women who have been operated on for endometriosis, should be given testosteron propionate instead of estrogen for menopausal symptoms. In spite of the great usefulness of the estrogens and the male hormone, I urge you not to use too much of these substances.

Dr. Herbert E. Schmitz, Chicago: I would like to discuss the last statement of Dr. Greenhill in regard to the use of estrogens in a patient with carcinoma. So often in a patient with carcinoma of the cervix or uterus going through the menopause because of radiation therapy an attempt is made to control the symptoms with estrogenic substance. I think that this is contraindicated for the reason that we have such good results in carcinoma of the uterus because we can stop function in that organ. If we stimulate function by the use of estrogenic substance we will defeat our purpose.

Tuberculosis as a cause of death among the wives of men who died of the disease is almost three times as high as it is for all women. Among sisters, the relative frequency is 2.3 times as high. Antonio Ciocco, M.D., Human Biology, May, 1941.

THE PHYSIOLOGICAL CHANGES INCIDENT TO PUBERTY

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A review of the information available at present on the subject of puberty shows our knowledge to be quite ample on many insignificant points, and very meager on some of the most important ones. Thus the appearance of pubic hair in boys is certainly one of the less significant changes of puberty, but it is one of the easiest to study and so has furnished some of the most quantitative information we have. The appearance of the ability to reproduce, on the other hand, is the most essential phenomenon in adolescence, and is properly emphasized as such in dictionary definitions of puberty; but in the nature of things it is all but impossible to determine this ability directly either in the individual case or in groups for statistical purposes. Thus we have the least knowledge of this most important aspect of puberty.

If we agree that a knowledge of the normal is indispensable for the diagnosis of the abnormal, then we must deprecate the absence of accounts of normal puberty in textbooks of physiology, gynecology, and urology. The writer has before him four books on these subjects; although they vary in length from 700 to 1200 pages, they do not contain the word "puberty" in their indexes.

Hope of increasing our knowledge of this subject is offered by various investigative methods, among which statistical method at present appears especially promising. To illustrate this point is one of the purposes of this paper; another purpose is to offer a summary of the pubertal changes in the normal boy and girl.

Growth Curves in General — Harris, Jackson, Paterson, and Scammon found that the organs and parts of the body could be classified into four main categories according to the forms of their growth curves.[1] In each category the period of life from 12 to 16 years shows something characteristic.

Organs and parts of the "general type," such

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as the bones, muscles, lungs, and kidneys, experience a marked acceleration of growth during this period. Because these organs outweigh the other parts of the body, the weight and dimensions of the body as a whole show the same marked acceleration. The individual person shows the acceleration even more markedly than does the average for a group of people.

Organs of the "neural type," such as the spinal cord, differ from the above in that they participate little, if any, in the pubertal acceleration. In fact, as a result of fairly steady growth throughout childhood they reach adult weight early in puberty and remain constant thereafter. According to the measurements of Godin[2] the brain declines a little in weight during late adolescence, having temporarily surpassed its destined adult weight at about puberty.

Organs of the "lymphoid type" are of special interest because the group includes the thymus, tonsils, adenoids, lymph nodes, and intestinal lymphatic masses. These structures reach the peak of their development just before the age of 12. At this time they are, on the average, about twice their destined adult size. This is true for the average; individual structures often far exceed this. Thereafter in general there is a rapid decline. While this fact is always recorded in connection with the thymus, as being one of the few established facts regarding that organ, its importance is not always appreciated in connection with the tonsils and adenoids.

Genital Growth — Organs of the "genital type" include the testicle, ovary, uterus, and so on. These organs experience a very sharp acceleration of growth during puberty; on the average, according to the curves of Harris, et al., their weights increase ten-fold between the ages of 12 and 20. This is true for the average; for the individual organ in a particular case the rate of growth is astonishingly rapid over short intervals of time. In one case noted by Jung and Shafton[3] the testicles must have doubled their weight (estimated on the basis of linear measurements) in six months and redoubled it in the following ten months; there was no reason to suppose this case unusual.

With the other external genitalia growing proportionately while the remaining parts of the body pursue entirely different growth curves, it is easy to see why many boys at puberty temporarily present a picture in which the genital elements may seem entirely too prominent. This has occasionally led inexperienced examiners to suspect self-stimulation as the cause. Obviously such a suspicion is based on thoroughly confused reasoning in the matter, both as regards the place of self-stimulation in the normal sex-life and as regards the way the body grows at puberty.

Factors Determining the Onset of Puberty in Boys — The functions of the human body, including the growth of its various parts, are influenced by so many seasonal and geographic factors that no results obtained in a particular region at a particular time should ever be assumed uncritically to hold elsewhere and for all time. Mitoses in the human body have a diurnal rhythm; this was shown by studies on preputia removed by circumcision at various times of the day.[4] Even the fingernails have an annual growth rhythm.[5] The seasonal effect on the growth of children is so marked that some children even lose weight in February and March, the least favorable months.[6] It was Carmpton[7] who showed that season has an effect on pubescence also; the duration of this period in boys is shorter if it includes summer. The seasonal and geographic influences affecting puberty in girls will be discussed below.

Part of the importance of Crampton's observation lies in the fact that an early puberty is at least temporarily advantageous to a boy. He found that if 100 boys between the ages of 14.00 and 14.99 years were sorted out by the pubic-hair criterion, the averages for height, weight, strength (as measured by a dynamometer) and proficiency in school were all higher in the post-pubescent group. Hence it would be of great interest to know whether there are regions, such as those of the Andes and the Rockies, where puberty might be perceptibly delayed.

Observations over a period of years or decades might also reveal a secular drift in puberty-time for boys comparable to that which will be mentioned below as having been reported consistently for girls; but no data of this sort, whether geographic or secular, have yet come to the attention of the writer.

Growth of Bone and Muscle in Boys — Porter and Smedley, according to Crampton, independently found a curious and striking correlation between weight and scholarship in each age-group of their series of boys. Smedley found that this correlation was highest at the age of 12. Crampton found that similar correlations involved height and strength; these facts proved to have a common explanation in the fact that within each age-group the post-pubescent boys were generally taller, heavier, stronger, and scholastically more proficient than the prepubescents. If it is safe to accept the widespread belief that autoerotic activity increases markedly at puberty, one must conclude that such activity does not result in demonstrable impairment of growth, strength, or scholarship.

Crampton dispelled an old idea that growth in height and growth in weight are mutually incompatible. He also showed that the prepubertal weight-rise reported by others was a statistical illusion, present in curves for averages but absent in curves for individuals. It is not always appreciated that normal individuals must deviate in both directions from an average. Surprising spurts in weight and in height growth are seen in the individual protocols given by Jung and Shafton.[3]

Relation of body-form to time of puberty is a difficult subject about which little can be said in boys. Of two cases of extremely late puberty in the boys seen by Jung and Shafton, one was that of an individual of rather feminine habitus, but neither subject was unusual as regarded height or weight for his age. The unsatisfactory results of attempts to classify men into leptosomic and other types[8] do not encourage one to try to make such correlations except in dealing with widely separated racial or geographic groups.

Skin, Hair, and Eyes in Boys — In an effort to see whether there was a difference in puberty-time between light-haired and dark-haired boys, Jung and Shafton classified a number of boys in this way. The results at first seemed to show that dark-haired boys went through puberty on the average nearly two years before the lighter-haired boys. It was soon found, however, that this was a statistical paradox explained by some old observations of Uchida and of Pfitzner.[9] These investigators found evidence, in England and in Alsace respectively, of a deepening of hair-color and eye-color during adolescence (strongest between 16 and 19). This change is best demonstrated in statistics, but is sometimes observed in an individual case. Hamilton and Hubert[10] also observed it in 3 out of 4 castrated men between the ages of 35 and 45 years after the administration of testosterone propionate.

Bloch[11] found it possible to study the changes of the adolescent skin quantitatively. He found that English school boys suffered from acne most severely at the age of 18, when 57 per cent were exhibiting it in severe form (blackheads, blotches, and pimples). He sketched an endocrine theory to account for the increased and troublesome activity of the sebaceous glands. The condition must be described as an almost normal abnormality, since less than 1 per cent of otherwise healthy boys escape it.

Boys poorly instructed in personal hygiene are especially likely to suffer an accumulation of smegma preputii after puberty. This may be due in part to the increased activity of the sebaceous glands already noted, in part also to the seminal emissions which should begin about this time. Modern psychology offers little justification for the old beliefs that phimosis and accumulations of smegma are important inducements to autoerotic activity, that the manipulations of stretching the prepuce and cleansing the collum glandis may initiate masturbation, or (even if all the former statements were true) that the supposedly resultant masturbation is abnormal and harmful. In view of the additional fact that the prepuce has an obvious function of protecting the glands, there is now less justification than formerly for circumcising as compared with giving hygienic instruction.

The pubic, axillary, and facial hair were found by Jung and Shafton to appear in the order named. The growth of facial hair has a certain popular interest, and the age between 16.00 and 16.99 seemed to be the critical one. Of 15 boys in that age-group, 8 had not yet shaved, 1 had shaved once, 1 had shaved twice, 1 was shaving about once a month, and 4 were shaving somewhat oftener. The appearance of hair on legs, arms, chest, and abdomen was also noted by these authors, but they were unable to

make any generalizations because of the lateness and especially because of the great variability of the hair in these regions.

Thyroid, Blood, and Gastric Acidity — Jung and Shafton also found it impossible to reach a conclusion regarding the thyroids palpated in pubescent boys. No consistent enlargement was found. This is in contrast to the findings of Pryor[12] in Californian girls of a significant enlargement of this gland. The difference may be either sexual or geographic.

The iron, copper, and hemoglobin in the blood of normal adolescent children have been measured by Sachs, Levine, and Griffith.[13] Up to the 14th year the two sexes do not differ significantly. At about this age the three values for girls become constant at the levels characteristic of adult women. After the 16th year in boys, however, the values for iron and hemoglobin rise sharply; they reach the average value for adult men by the 17th year. During the 17th or 18th year the value for copper similarly reaches the value for adult men.

A similar sexual differentiation at puberty affects even the stomach. According to the statistical work of Vanzant et al.[14] at about the age of puberty the average value of free gastric acidity for boys begins to rise considerably above that for girls.

The Mammary Gland in Boys — There are no data available as to the frequency with which painful lumps under the nipples of normal pubescent boys are removed by surgeons and subsequently diagnosed as adenofibromas by pathologists, but personal communications to the author indicate that the frequency is considerable. This is simply because physiologists have not hitherto supplied a complete chronology of the growth of the male breast.

It appeared from the studies of Jung and Shafton that at least in Illinois the mammary glands of every normal boy are stimulated to renewed growth during puberty. The glandular mass (the subareolar node) is at first hard and spherical, and raises the nipple above it measurably. The nipple height thus reaches a maximum at the age of 14.2 years. Tenderness is not always present, but is sometimes quite marked. About 15 per cent of the boys are sufficiently impressed with the tenderness to remember it in later life. In the course of a few years the nodes soften and many vanish; but many older men retain palpable subareolar nodes.

In the experience of Jung and Shafton early and conspicuous subareolar nodes were correlated with apparent physical vigor, and the largest nodes seen in pubescent boys — nodes which in one case measured 6 cm. across — were in especially athletic specimens. This fact is explained by the observations of Selye and others, who obtained mammary hypertrophy in male rats after the injection of testosterone.[15]

Since the subareolar node is a normal structure, it is misleading to refer to it as mastitis adolescentium except in the event of complications. Since it is the natural result of the action of an important hormone, one can understand why Vassal[16] found it a very stubborn condition to treat. It also becomes unnecessary to decide between the contentions of Stümcke[17] and Laurent[18] on the one hand and of Franck[19] on the other; the latter suggested autoerotic activity as the cause, the two former suggested autoerotic activity as the cure, for the subareolar node.

Change of Voice — The change of voice to a deeper pitch is one of the earliest and most evident changes of puberty. That it can be prevented by castration is well-known. This fact is supplemented perfectly by the studies of Hamilton and Hubert[20] on human eunuchoid subjects. For each voice the pitch of conversation and actual range was recorded before and after treatment. Testosterone propionate lowered the range and pitch. Congestion and coarseness of the membranous structures accompanied treatment and were followed by prominence of the thyroid cartilage. Withdrawal of therapy permitted partial reversion, especially in pitch.

Genital Phenomena in Boys — Quantitative studies on various kinds of erotic activity in boys were published by Hirschfeld. This was an important contribution, and many additional studies of the same sort in different times and places would be desirable. This is especially true because data obtained by any kind of questionnaire method are likely to reflect to some extent the prejudices of the collector.

That various erotic manifestations, including erections, are normal in boys of all ages is now generally conceded. Hirschfeld found that 15 per cent of the boys he questioned had had sexual fantasies during or before their fifth year of life.[21] It is generally assumed that such phenomena should increase sharply near puberty, but actual data on this point are scarce. Of 437 boys, 12 per cent had begun to masturbate before the end of their ninth year, and more than 50 per cent had begun before the end of their thirteenth year.

To some boys the first erotic dream with emission of semen comes as a memorable, even shocking, experience. If this were true for all, the phenomenon would be as well adapted to statistical study as is the menarche in girls; but it appears that most men do not recollect this event. After the rhythm of erotic dreams and nocturnal discharges is established it continues for years at a fairly constant level. At least two studies [22, 23] of this phenomenon in the adult have been published, but systematically gathered information as to its appearance at puberty and frequency immediately thereafter seems to be lacking.

No data have been found as to the time at which spermatozoa appear in the genital secretions of boys. Such data would help to give a notion as to the time at which boys become capable of generation, though it would not be conclusive. The variations found in the semen of men of proved fertility, and the facts to be mentioned below regarding adolescent sterility in girls, would render unsafe and final deductions as to fertility in boys on the basis of finding spermatozoa.

Chronology of Pubertal Changes in Boys — The following summary probably gives the most usual order of the changes of puberty in boys. In individual cases the changes may occur in a different order. When a statement is made regarding an average it necessarily implies that normal individuals deviate in *both* directions from that average. Finally, it must also be noted that data representing some widely separated places and times cannot be applied uncritically in particular circumstances.

Year

10. Growth of neural type of organs nearly complete.
12. Maximum weight for lymphoid organs.
13. Average time for change of voice; beginning of period of rapid genital growth.
14.0 Fastest growth of pubic hair; fastest growth of body in height and weight; autoerotic activity in more than half of boys before this age.
14.5 Maximum nipple-height (most frequent occurrence of subareolar node); fastest decline of lymphoid tissues.
15.0 Fastest growth of axillary hair.
16.0 Fastest genital growth (penis and testicles).
16.5 About half of boys have begun to shave.
17. Blood iron and hemoglobin reach adult male level.
18. Blood copper reaches adult male level; acne reaches worst stage.

The Menarche — Studies of adolescence in girls have had the advantage over comparable studies in boys in that the menarche is so definite an epoch in a girl's life. It lends itself to exact numerical treatment and has led to some convincing and informative results.

Thus, for instance, the effect of climate on the menarche has been clearly brought out by Engelmann.[24] He found that girls of Norwegian stock living in the region of the Great Lakes menstruate about 18 months earlier in life than do girls of the same stock in Norway. In the same way it has been possible for Engle and Shelesnyak[25] to demonstrate the effect of season. They found that the menarche is a little more likely to occur in the winter months than in the summer, and that when the menstrual cycle has already been established it is liable to slowing and irregularity when summer comes. This is in agreement with the earlier findings of Kirchhoff and the more recent ones of Breipohl.[26]

Of equal interest is the information assembled by Mills[26] revealing a secular drift in the time of menarche. Data obtained by a variety of investigators show that in some parts of the world the menarche has been occurring at least a year earlier than it did in the past. Such data are available from German, Dutch, and Norwegian sources; Schreiner's data[27] from Norway, in fact, go back as far as the year 1839. Hypotheses as to the explanation are given by Howe.[28]

Hair-Color and Body-Build in Girls — In addition to the environmental factors just mentioned, there must be internal, individual factors that determine the onset of the menarche. In the case of boys, the attempt of Jung and Shafton to tell whether different physical types go through puberty at different ages was found to lead to a statistical paradox. The boys had been classified as light-haired and dark-haired, and it was found that during the period of study so many boys pass from one category into the other as a result of adolescent hair-darkening that the criterion is not reliable.

Apparently the same phenomenon has been encountered in girls. Breipohl[29] selected the 21 darkest and 179 lightest-haired out of 284 German girls, and found that the brunettes had first menstruated at an average age of 13.02 years, while the blondes had first menstruated at 13.31. He wisely refrained from drawing a conclusion.

In the same way Pryor and Smith[30] compared the time of menarche of the nine slenderest with the nine broadest in their series of Californian girls. While the broad-built girls had their menarches at the early average age of 11.7 years, the average could not be computed for the slender ones because when the study was terminated they had not yet all menstruated; their average was apparently destined to be well over 14. Since the same authors demonstrated a marked broadening of contour to be an essential change of puberty, it is evident that one must be careful in drawing a conclusion.

Other Factors Affecting the Time of Menarche — Schaeffer[31] was not able to confirm a previous report by Mayer as to a difference in time of menarche between blondes and brunettes. It is likely, however, that if more dependable criteria than hair-color or skeletal measurements are used in sorting out geographic or social groups, real differences will emerge. An example is Schaeffer's finding that 1321 Christian girls averaged 14.053 years at the menarche while 480 Jewish girls averaged 13.522 years.

Schaeffer, whose observations were made in Germany, also confirmed the findings of Szukitz in Austria, Brierre de Boismont in France, and Ravn in Denmark, that girls in the country menstruated more than a year later than girls in the city. Within a given environment, also, the daughters of wealthy families menstruated about a year earlier than the daughters of laborers, and girls classified as strong menstruated earlier than mediocre or asthenic girls.

These last facts give rise to a complicated set of intercorrelations in which it becomes difficult to distinguish cause from effect. Evidently early puberty, large physical size, physical strength, good state of nutrition, superior intelligence, and favorable environment are mutually related in girls as they were seen to be in boys.

Advantages of Early Puberty in Girls — Carter[32] noted that the disparity between premenarcheal and postmenarcheal girls within any given age group tended to become negligible with increasing age. This is parallel to Smedley's observation in boys. In other words, the advantage of having an early puberty seems striking at first, but dwindles because the retarded individuals can be shown by actual measurement to make up for lost time. This agrees further with the conclusion of Mills and Ogle[33] that a late menarche does not necessarily mean late appearance of fertility.

In fact, the ultimate advantage lies in having a menarche rather near the mean for the population in the given environment. This was found to be true in the study of Mills and Ogle;[33] if the menarche occurred much earlier or much later than the average, marriage or illegitimate first birth was delayed. Vitalli[34] has assembled data that show that not only very late, but also very early, menarche increases the probability of the following troubles: (1) irregularity of cycle (Schröder), (2) anomalies of bleeding (Feldweg), (3) primary sterility, habitual abortion, and prematurity (Feldweg), (4) frequency of abortion (de Torres), and (5) dystocias (Weysser). Vitalli also made a remarkable quantitative study of the milk-secretion of 1386 mothers who gave the dates of their respective menarches; it was found that girls who menstruate most nearly at the average age are most likely to have satisfactory lactation. Risopoulos[35] agrees with Vitalli that late menarche predisposes to some condition, probably narrow pelvis, of etiological importance in Caesarian operations; the data of Risopoulos were obtained in a comparison of the histories of 75 Caesarian patients with 5288 normal mothers.

Skin and Breast — Bloch studied quantitatively the distribution of blackheads, pimples, and blotches in girls as he did in boys.[11] In girls these unwelcome harbingers of puberty were sometimes found as early as the age of 7, and they reached what might well be called their pessimum at the age of 17, a year earlier than that for boys.

Apparently the female breast passes through a stage comparable to that described as the subareolar node in boys, but from 3 to 5 years earlier. The youngest of the fourteen German girls in whom Zappert[36] observed the "acute painful swelling of the breast of older children" was 8 years old; his largest group of children with this condition were 11 years old. This agrees with the finding of Pryor[37] that the stage of the breast-bud was found most frequently in the age-groups from 11.5 to 12.4 years. The subsequent development of the female breast is summarized in a table by Pryor, and the data can be checked against the illustrations in the book by Gläsmer and Amersbach.[38] The development of the breast begins before the appearance of pubic hair, and is well advanced by the time of the menarche.

Pubic Hair. — The tabulations of Pryor include the result of classifying 74 girls at the menarche as to the stage of development of pubic hair. The largest group, 48 girls, were at that time at stage C, characterized by "terminals not over 25 mm. in length, sparse, fully pigmented, and wavy." Another table, showing the relation of pubic hair to age, indicates that a definite growth precedes the menarche by roughly a year. The axillary hair appears later than the pubic as it does in boys.

Height and Weight Growth in Girls. — Pryor and her collaborators made a serial study of the adolescent growth spurt in 100 girls. Examinations were made at half-year intervals over a period of four years. Gain in height preceded gain in weight, and was quite evenly distributed over a period of 18 months. Pubescent girls averaged a height increase of 10.64 cm. in eighteen months compared with a 9.38 increase for non-pubescent girls of the same age. The rate of height-gain for pubescent girls during the last six months before the appearance of the menses was 26 per cent faster than that for non-pubescent girls during the same period of time. Pubescent girls were consistently taller and broader than non-pubescent girls of similar ages in a series of 422 cases.

The same investigators also studied the weight-growth of their subjects. They found an acceleration which appeared to be specifically stimulated by the approach of catamenia. During the six months just preceding the menarche, 40 girls made "an average gain of 4.2 kg. (9.2 pounds), or almost twice as much as 40 other girls of the same ages who were non-pubescent and averaged 2.47 kg. (5.4 pounds) during the same period of time." The result of this acceleration of growth is that, like boys, post-pubescent girls for a time surpass the pre-pubescent girls of their own age-group in height and weight.

Mental Attitude in Girls. — A remarkable illustration of the usefulness of statistical method is the discovery of Stone and Barker[39] that they could express quantitatively so intangible a thing as the change in outlook that accompanies the menarche in girls. They used three standard tests to measure the intelligence, interest-attitudes, and developmental age of 175 post-menarcheal girls. The results were compared with others obtained by measuring a similar, homogenous group of 175 premenarcheal girls, paired for chronological age with the former group. By all three tests the post-menarcheal group was found to be significantly ahead.

Reproductive Phenomena. — Engle and Shelesnyak[25] studied the first menstrual cycles of 100 girls whose medical histories and physical findings were normal. This group of girls had experienced from 20 to 69 cycles, a total of 3,140. The extreme range for length of cycle was from 7 to 256 days, with a mode at 28 days and an average of 33.9 days. Thirty-two per cent of these cycles departed more than 14 days from the average for any given girl, and thirty-two per cent of the cycles differed by more than 11 days from the average of the group as a whole. It is important to note that the average (roughly 34 days) differs from the most frequent figure (28 days) by as much as 6 days. The extent of normal variations revealed by this study deserves wider appreciation; it has also been emphasized by Arey.[40]

Mills and Ogle[33] have assembled the results of observations in man as well as of experiments

with monkeys and mice which indicate that the menarche is not the same as the time when ability to conceive appears. The monkeys studied by Hartman[41] began to menstruate when their body weights reached about 3350 grams, but did not ovulate or conceive until they reached about 5000 grams. The mice studied by Mills and Ogle under controlled conditions of artificial climate showed a lag of about 30 days between first estrus and first conception, the duration of the lag being affected by living conditions. In the human female the corresponding lag is of the order of 5 years.

CONCLUSION

Our knowledge of the simple numerical facts about puberty in both sexes is still incomplete. The methods of statistical analysis in the hands of experienced workers promise to help much in giving us the data on which to base the diagnosis and treatment of abnormalities.

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GRAPHIC CHANGES OF CORONARY OCCLUSION

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Before the characteristic electrocardiographic findings of myocardial infarction were so well understood the clinical diagnosis of coronary occlusion was difficult. With the aid of recent knowledge the diagnosis can now be established with a high degree of accuracy in the majority of cases.

The importance of the typical S-T interval displacement, coronary T wave and the other more outstanding abnormalities diagnostic of occlusion are widely recognized. Additional graphic alterations, although not typical, occur sufficiently frequent following infarction to be of definite assistance in diagnosis. Particularly is this true when the more typical changes are minor or absent. The diagnostic importance of these minor changes is not sufficiently recognized. Over-enthusiastic pre-occupation with chest leads during recent years has directed attention away from the three standard leads.[1-9] Whereas chest leads occupy an important and indispensable place in the study of coronary occlusion curves, many significant changes occur in limb leads and these will be found to be of great assistance in diagnosis if they are only sought and detected.[10-13]

The characteristic graphic changes following an acute coronary occlusion have been summarized[14] as follows:

1. Elevation or depression of the S-T interval[15, 16] with reciprocal change in Leads I and III, which represent the T_1 and T_3 type[17] of curve so useful for localization[18, 19] of the myocardial infarct.
2. Cove-shaped coronary T wave.[20]
3. Large Q_3.[21]
4. Prominent Q_1 and Q_3.[22, 23]
5. Abnormal chest leads.[1]
6. Large P wave.[24]
7. Low voltage.[25, 26]
8. Reciprocal T wave.[26]
9. The sudden onset of ventricular tachycardia, auricular fibrillation or flutter, or of auriculoventricular or intraventricular block, in a patient without previous cardiac symptoms, especially if known to have had a recently normal electrocardiogram.
10. Typical progressive changes of myocardial infarction in serial curves.[8, 16, 17, 27-30]

Analysis of large groups of coronary occlusion curves to determine the frequency of occurrence of these minor changes associated with myocardial infarction should be of great value.[8] Such information is essential if the importance of these changes in the diagnosis of coronary occlusion is to be properly evaluated. With this in mind an analysis was made of our experience with this condition. It is important to recognize that the approach was electrocardiographic not clinical or from the viewpoint of necropsy.

During a five year period, 4,351 graphs were recorded on 3,879 private patients referred for electrocardiographic examination. From this group 668 records, representing 350 coronary occlusions in 345 patients, were selected for study. Graphic abnormalities indicative of recent infarction was the sole basis for selection. Only cases with definite electrocardiographic evidence of occlusion in the initial record or in subsequent curves were included. All others, regardless of the clinical picture, were rejected. Our observations are reported; related references to the literature being added.

Of the 345 patients, 274 were male and 71 female.[8, 31-33] Of the 350 cases of occlusion 98 were ambulatory, 104 were in hospitals and 148 were at home at the time of the initial record. Many of the electrocardiograms were obtained within a few hours of the clinical attack. Some, particularly in the ambulatory group, were obtained later. In 168 instances, two or more records, at variable intervals, were obtained. Age incidence, distributed according to decades, reveals that the greatest number of attacks occurred during the fifth decade.[8, 31, 32, 34] There was a predominance of anterior infarctions in this series.[8, 12, 34, 35]

Mortality was higher during the first several days following an attack than later.[36] If delayed, it was commonly associated with a subsequent attack.[37] Combined infarction was rare in this series.[8, 31, 37] In reported necropsy series its incidence is high[8, 34]; indicating that multiple infarction has a more serious prognosis than has a single infarct. A correct graphic diagnosis of multiple infarction may, at times, be difficult.

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Occasionally, it may be difficult to establish the occurrence of a subsequent infarction by electrocardiograms alone. Usually, however, alterations resulting from the more recent occlusion dominate the picture. A diagnosis of combined or subsequent infarction, in this series, was made only when both occlusions could be dependably demonstrated by serial curves.

All graphs were made with the patient in the recumbent position.[38, 39, 90] The three limb leads were first recorded. Chest leads were obtained by transferring the left arm electrode to the left fifth interspace in the midclavicular line; lead wire connections remaining undisturbed. Lead I and Lead III on the control board were selected in succession; a right arm to precordium and a standard Lead V chest lead thereby being recorded.[40] These are identical with a CR_4 and an inverted CF_4 according to the new terminology[41].

Of the 350 coronary occlusions, 182 patients had only one record; 100 had 2; 32 had 3; 14 had 4; 12 had 5; 3 had 6; 2 had 7; 3 had 8 and 2 had 9 records at varying intervals following the accident. Of the 350 graphs diagnostic of occlusion 186 were of the T_1 type, 26 with and 160 without S-T interval displacement; 112 were of the Q_3T_3 type, 38 with and 74 without S-T interval displacement; 22 were of the Q_1T_1 type, 7 with and 15 without S-T interval displacement; 14 were of the T_3 type, 2 with and 12 without S-T interval displacement, while 6 represented lateral infarctions[42] and 10 could not be classified.

Electrocardiograms with and without S-T interval displacement represent respectively the early and late stage of the typical T wave changes which characteristically follow myocardial infarction. The large Q_3 of Pardee is represented by the Q_3T_3 group; the prominent Q_1 being likewise represented by the Q_1T_1 group of this series. For the production of S-T interval displacement, some[43] believe that a fall in blood pressure in addition to the coronary occlusion, is necessary, while others[12, 43-46] feel that such a fall in pressure is not essential. In five cases with normal or temporarily elevated blood pressure S-T interval displacement occurred in limb or chest leads or in both. This transitory elevation of blood pressure which may occur during the early painful stage of infarction may, by suggesting angina, cause one to over-look the possible presence of a recent or developing coronary occlusion. With more careful study of the initial stage of infarction, a much larger incidence of such changes will undoubtedly be found.

Chest leads were normal following occlusion in 128 cases; 29 of T_1, 84 of Q_3T_3, 3 of Q_1T_1, 4 of T_3 type, while 4 were lateral infarctions, and 8 were unclassified. They were abnormal in 222 instances. Of these, 193 simply magnified diagnostic changes already present in the limb leads. Of the latter group, 184 were of no diagnostic assistance. In 29 instances chest leads were abnormal without diagnostic changes being present in the corresponding limb leads, and hence were of diagnostic assistance. In 9 instances, in which chest leads magnified limb lead changes, they were helpful, since the limb lead changes were not sufficiently marked to be dependably diagnostic. For the diagnosis of coronary occlusion, chest leads were essential in 19, helpful in 19 and of no assistance in 312 instances. An absent initial positive ventricular deflection[47] occurred in 3 of the 5 instances of old occlusion as the only remaining evidence of myocardial infarction. A huge T wave[48] of reversed polarity occurred twice in the chest leads of a T_1 curve without S-T interval displacement, and not at all in a Q_3T_3 curve. A large T wave of normal polarity occurred 9 times in Q_3T_3 curves, 2 with and 7 without S-T interval displacement; such a T wave occurred once in a Q_1T_1 curve without S-T interval displacement, and not at all in a T_1 or T_3 type of curve. A T wave of reversed polarity, but of normal size[49] occurred, as an isolated chest lead finding, 10 times in T_1 curves, 5 times in Q_3T_3 curves, twice in Q_1T_1 curves, twice in T_3 curves and once in a curve of lateral infarction.

A large P_2[24] occurred in 112 T_1 curves, 56 Q_3T_3 curves, 13 Q_1T_1 curves, 6 T_3 curves and in 4 curves of lateral infarction and 6 unclassified curves; a total of 197 times in 350 instances of coronary occlusion.

Low voltage[25] occurred in 45 T_1 curves, 9 Q_3T_3 curves, 7 Q_1T_1 curves, 2 T_3 and in 2 lateral and 2 unclassified curves; a total of 67 times in 350 coronary occlusion curves.

A reciprocal coronary T wave[26] occurred in

55 T_1 curves, 40 Q_3T_3 curves, 10 Q_1T_1 curves, 3 T_3 curves and 1 unclassified curve; a total of 109 times in 350 instances of occlusion. That the occurrence of a reciprocal T wave is not limited to T_1 occlusion curves is evidenced by the fact that such a wave appeared in 40 Q_3T_3 curves and in 3 T_3 curves. Basis for this alteration is the long since recognized reciprocal relationship of Leads I and III.

Ventricular tachycardia occurred in 7 instances, 5 times in T_1 curves and twice in Q_3T_3 curves. Auricular fibrillation occurred in 7 instances, 6 times in T_1 curves and once in a Q_3T_3 curve. Auricular flutter, of 2:1 type, occurred twice, once in a T_1 curve and once in a T_3 curve. Nodal tachycardia occurred once in a Q_3T_3 curve. Auricular tachycardia was not observed. Ventricular extrasystoles occurred in 11 T_1 curves, 7 Q_3T_3 curves and once in a Q_1T_1 curve. Nodal extrasystoles occurred in 3 T_1 curves, 3 Q_3T_3 curves and in 2 Q_1T_1 curves. Auricular extrasystoles occurred in 6 T_1 curves and 3 Q_3T_3 curves. A prolonged P-R interval was noted in 8 T_1 curves, 1 Q_3T_3 curve, 4 Q_1T_1 curves, 2 curves of lateral infarction and in 1 unclassified curve. Dropped beats occurred twice, once in a T_1 and once in a Q_3T_3 curve. Intraventricular block occurred in 7 T_1 curves, 2 Q_3T_3 curves, 4 Q_1T_1 curves, 1 T_3 curve, 1 curve of lateral infarction and once in an unclassified curve; a total of 16 times in 350 cases of coronary occlusion. Bundle branch block occurred thrice in T_1 curves. Complete heart block occurred only once in a Q_3T_3 curve. This data is summarized elsewhere in tabular form.

Serial curves were necessary in 18 instances to definitely establish the diagnosis of coronary occlusion.

DISCUSSION

For the recording of an electrocardiogram the recumbent position should be routinely employed.[85, 89, 90] Unfortunately, this is not yet universally recognized.

In the past, some preferred a right arm to precordium,[11, 50-52] others a precordium to left leg chest lead.[15, 53] The original Leads IV and V of Wolferth, identical in appearance, were most widely used. In most of the outstanding contributions one or the other of these leads have been employed. The technique for recording Lead V almost became the accepted chest lead procedure.

In the midst of this investigation the recommendations of the American Heart Association for the standardization of precordial leads appeared.[41] Some now prefer IVR[54, 55], others IVF[43, 56], while some record CF_3, CF_4 and CF_5[57], others CF_2 and CF_4[58], while still others prefer to record a IVR or IVF with CR_3 or CF_3[12]; there being no agreement as to the best location of proximal or distal electrode or the manner in which the electrodes should be connected to the galvanometer. That the polarity of chest leads be reversed has been suggested.[1, 41] The matter is of academic rather than clinical interest. The method has not been universally accepted.

The position of the chest electrode is of considerable importance. A small shift thereof may considerably alter the record. As previously emphasized,[14, 40] "we have not found it satisfactory to place the electrode over the apex of the heart as is done in some clinics."[8]

It is clear that considerable confusion still exists concerning the proper method of recording chest leads.[9] Lack of a simple practical, uniform and precise technique is responsible. Hence, it was not considered wise, in the midst of this survey, to change our chest lead technique.

A simplfied technique,[40] modified from Roth,[11] as described above, was routinely employed. The advantages of this method of recording chest leads are readily appreciated. It is simple and dependable. For convenience, the left arm electrode was applied to the chest; no advantage in the use of a special chest electrode[41] having been observed. This eliminates shifting of lead wire connections. Two precordial leads are as readily obtained thereby as is a single lead by any other technique. No other method for the recording of chest leads is supported by such a wealth of experience or has afforded more information in routine clinical practice. The method, we believe, if universally adopted, would simplify the use of precordial leads and eliminate existing confusion which has resulted from a lack of uniformity and precision in technique and nomenclature; the leads here described being referred to simply as Leads IV and V.

It is well recognized that the electrocardiogram may be so distorted by other factors and conditions that it may be difficult to differentiate the resultant alterations from changes due to myocardial infarction.[8, 59]

An established arterial hypertension may modify the form of the electrocardiogram.[14, 60, 61] These characteristic alterations frequently simulate and have often been mistaken for those resulting from coronary occlusion with myocardial infarction. Especially is this true when only a single record is available for diagnosis. Again, the development of the typical progressive changes of myocardial infarction is frequently delayed in the curve of arterial hypertension. However, if serial curves, recorded at properly timed intervals, are available, the diagnosis can be established with a considerable degree of certainty in most instances. The curve of arterial hypertension,

once established, persists with little change in contour. The progressive and characteristic nature of the changes which follow infarction are readily recognized in most cases. Following an occlusion, when the previous blood pressure level is unknown, a normal reading may mislead, unless a further drop in pressure is noted. At times, the electrocardiogram may furnish the only evidence of pre-existing hypertension.

Intraventricular block is, at times, a disturbing element in the graphic diagnosis of occlusion.[8, 62-64] It may mask features of the electrocardiogram commonly associated with infarction. Nevertheless, changes often occur which indicate an occlusion, especially if serial curves are obtained. Progressive changes or the occurrence of a transitory block are suggestive.[8] It is well to remember that prolongation of auriculo-ventricular conduction, and particularly intraventricular conduction, as well as complete and incomplete bundle branch block, are frequently associated with coronary sclerosis and constitute strong presumptive evidence of coronary disease.

Digitalis may modify the form of the electrocardiogram.[65-68] It requires about two weeks for digitalis effects to disappear. In only 9 cases was digitalis given. In most instances the quantity was too small to interfere with the other graphic changes. In 3 cases definite alterations resulted, but in no case did it cause confusion in diagnosis.

Pericardial involvement,[69-73] pulmonary embolism,[74-77] aortic aneurysm,[78-80] trauma to chest,[8] coronary insufficiency,[81] angina and congestive failure may, likewise, cause confusion in diagnosis.

Limb lead changes alone,[82, 83] in the majority of instances, were dependably diagnostic of myocardial infarction.

Disturbances of rhythm occasionally occurred. They were usually associated with anterior infarction. The incidence of ventricular tachycardia in this series minimizes the importance of routine prophylactic administration of quinidine sulphate.[84, 85] It is wholly depressant in its effect on the myocardium. It is unquestionably the drug of choice when ventricular tachycardia occurs.

Left axis deviation occurred frequently and with all types of infarction. Rarely was it transitory. Right axis deviation occurred rarely, with anterior infarction, not at all with posterior infarction, and in no instance was it transitory. Slurring of the QRS complex was present in most instances; notching being much less frequent. These changes, however, were of little or no assistance in the diagnosis of coronary occlusion.

The classic picture of S-T interval displacement[15, 16] presents: with anterior infarction, S-T_1 elevation and S-T_3 depression; with posterior infarction, S-T_1 depression and S-T_3 elevation. These typical alterations,[17] in the vast majority of instances, localize the region involved, which in turn usually indicates the coronary artery occluded.[28, 86] As a result of these patterns the majority of coronary occlusion curves fall into two definite and distinct topographic groups which agree essentially with the specific muscle bundle method of localization.[10]

Displacement of the S-T interval, signifying the early stages of infarction, was absent in a high percentage of cases. While in some instances delay in obtaining the initial record may have been responsible, in most instances the interval between the attack and the initial record was short and still this early change of infarction had disappeared. The transitory nature of S-T interval displacement in limb leads, was more evident with lateral infarction. It was more common and marked with anterior than with posterior infarction; the reverse being true of S-T interval changes in chest leads. Deviation of the S-T interval, particularly in limb leads, was not always characteristic. This was more commonly noted with anterior than with posterior infarction. This variability has been ascribed[8] to closeure caused by sclerotic plaques with associated widespread coronary sclerosis and insufficiency. Graphic alterations of the type attributed to recent infarction, due to sudden (thrombotic) closure, followed closely the patterns described.

Typically, S-T interval displacement is opposite in direction to the T wave which subsequently develops as is the convexity of the curve forming the proximal limb of this coronary T wave. With recent anterior infarction this bowing of the S-T interval is upward in Lead I and downward in Lead III. With recent posterior infarction it is the reverse. This change appears early following infarction and quickly disappears. In most instances S-T interval displacement followed the classic picture. Exceptions usually presented changes attributed[8, 88] to chronic impairment of the coronary circulation. Occasionally, the S-T interval was depressed in all three leads. Rarely, it was elevated in all leads.

The peaked coronary T wave with rounded shoulders and symmetrical limbs which follows the typical, oppositely directed, S-T interval displacement, occurred in the majority of instances. With recent anterior infarction, a negative T_1; with recent posterior infarction, a negative T_3 is to be expected. A T_2 of similar contour may occur with either type but is more frequently of diagnostic assistance with posterior than with anterior infarction. A negative T_1, simulating in contour a typical coronary T wave and arising from an isoelectric level, usually indicates an old anterior infarction. If the T wave originates from a depressed S-T interval it does not dependably indicate occlusion; being due, usually, to chronic coronary disease, involving the left ventricle with or without an associated arterial hypertension. T waves, described as upright, positive or reciprocal coronary T waves,[20] were less frequently observed. In certain instances they were helpful in diagnosis. Coronary T waves in all limb leads occurred. Positive T waves in all leads were likewise noted, early and late, fol-

lowing infarction, but in no sense were these of the reciprocal type elsewhere described.[20] A large Q_3, of the type described elsewhere,[21] is commonly associated with the coronary T_3 of posterior infarction. It may indicate coronary involvement with or without occlusion. It is found with a variety of myocardial changes other than infarction. It may be transitory. It may occur with a perfectly normal heart. A large Q_3 with inverted T_3 does not indicate an old infarction, as does at times, a similarly associated Q wave in Lead I. An associated negative T_2 of typical coronary contour does furnish dependable evidence of a previous occlusion. Occasionally, a small Q_1 occurred with anterior infarctions of the type due to thrombotic closure. In another series it was not found with such T_1 infarctions.[8]

Although, at times, a Q_1 associated with infarction, persists much longer than does the S-T interval and T wave alterations, and hence assists in diagnosis, on the other hand, it is often no larger than is the small Q wave which occurs fairly frequently in Lead I of the normal electrocardiogram; its diagnostic importance thereby being greatly impaired. It is most helpful when the chief deflections in Lead I are small.[12]

"The diagnostic value of Q_3 for the localization of infarction is thus practically nil and it is doubtful whether Q_1 is of greater value in this regard."[8] Occurrence of S_1, S_3 or combinations of these with Q_1 and Q_3 were of no particular diagnostic significance.

Chest leads, at times, assist in determining the occurrence, the location and/or the duration of myocardial infarction. Some have described alterations of the QRS complex, others have emphasized the significance of S-T interval displacement, while still others have stressed the importance of T wave changes. In precordial leads, R_4 or Q_5 are best described as the positive initial deflection. Absence of this wave has been considered characteristic of recent anterior infarction.[47] This was found to be true in most instances. In several cases a small and in a few instances, a large R_4 or Q_5, was present with anterior infarction. Persistence of this wave with anterior infarction has likewise been attributed to closure caused by sclerotic plaques.[8] An absent R_4 or Q_5 is a significant finding. It is frequently indicative of recent anterior infarction. It may be the only remaining graphic evidence of an old anterior infarction. It is the most dependable late sign thereof; being suggestive but not absolutely diagnostic. Its presence, however, does not eliminate such a possibility. An absent R_4 or Q_5 occurs with coronary sclerosis without infarction and may occur even in the absence of coronary disease.

Too little attention is paid, in the literature, to the distinction between an old healed infarct, of little practical importance, and a recent or healing infarct requiring special medical attention. Differentiation, for the most part, is possible only by means of serial curves.

Normally, the QRS complex is diphasic in chest leads. With recent anterior infarctions a negative monophasic QRS complex occurred in most instances. In several instances, apparently sclerotic closures, this was not true. A negative monophasic QRS complex may occur without infarction; the result of myocardial involvement due to extensive coronary disease. With recent posterior infarction, the QRS complex retains its normal diphasic appearance in most instances. Rarely was a negative monophasic QRS complex observed. A positive monophasic QRS complex occurs fairly frequently in otherwise normal records and does not, per se, indicate infarction.

Deviations of the S-T interval were more characteristic than QRS complex changes. Elevation of $S\text{-}T_4$ with depression of $S\text{-}T_3$ occurred in most instances of recent anterior infarction. Persistence of S-T interval displacement in chest leads with anterior infarction was occasionally of assistance in directing attention to the recent occurrence of an occlusion and in this way was of assistance in diagnosis. Depression of $S\text{-}T_4$ with elevation of $S\text{-}T_3$ occurs with recent posterior infarction. When displaced $S\text{-}T_{4,5}$ tends to become horizontal; its termination being more clearly differentiated than normally. Such a horizontal $S\text{-}T_{4,5}$ may occur and without deviation suggest a recent posterior infarction. With posterior infarction, however, the $S\text{-}T_{4,5}$ displacement is so transitory and its return to the isoelectric level is so rapid that, unless the graph is recorded very soon after the occurrence of an occlusion, the change is missed; the chest leads having returned to normal no evidence of infarction remains in these leads.

T wave changes were characteristic in most instances. An inverted T_4 or upright T_5 was present in most of the cases of recent anterior infarction. A normal $T_{4,5}$ was found most often in cases of recent posterior infarction. A T wave of reversed polarity, as an isolated finding in chest leads,[49] while not diagnostic of occlusion, is a highly significant finding. Whereas it commonly occurs in the electrocardiogram of children with normal hearts,[47] it is uncommonly seen in the adult electrocardiogram in the absence of coronary disease. The findings should be considered a definite indication for further graphic study. Reversal of the direction of $T_{4,5}$, while fairly common with anterior infarction, is considered rare with posterior infarction; two cases[51] being cited[12] to indicate that it can occur. A tall T_4 or deeply inverted T_5 was found most often in cases of recent posterior infarction. Whereas such an abnormally large T wave[48] of normal polarity occurs in otherwise normal curves from patients without evidence of heart disease, nevertheless, it occurs sufficiently frequent following a coronary occlusion to warrant serious consideration; the abnormality demanding further graphic observation. A huge T wave of reversed polarity,

associated with anterior infarction, while less frequent, is of greater significance. These waves may be transitory or persist for months.

Regarding the relative value of standard leads and chest leads in the diagnosis of recent infarction,[88] we found that in 312 of 350 coronary occlusion curves the diagnosis of myocardial infarction was dependably indicated by alterations in the limb leads; chest leads being of no diagnostic assistance in these cases. In 38 instances chest leads were of assistance in diagnosis; helpful in 19 and essential in 19 cases. Chest leads were abnormal in 222 instances. In 129 of these cases they simply magnified diagnostic changes already present in the three standard leads, and in 184 instances were of no help in diagnosis. Chest leads were normal in 128 instances, these being, for the most part, posterior infarctions.

Serial curves, as previously emphasized, are often necessary in the diagnosis of recent infarction. They are always helpful in management. The progressive changes of serial curves, the result of infarct organization, aid in estimating the progress of healing. As healing progresses the graph returns toward normal. If the healing process stops short of complete recovery the electrocardiogram may fail to return completely to its normal or former contour. They are of assistance in determining the amount of residual coronary insufficiency.

A large P_2[24] appeared sufficiently frequent to be of definite assistance in the diagnosis of myocardial infarction. Changing P wave contour, likewise, may be of diagnostic assistance. An increase in amplitude of the auricular sound in stethograms has been observed following acute coronary closure.[89]

Low voltage commonly develops following occlusion and is frequently of definite diagnostic assistance. Such a marked and sudden decrease in amplitude of QRS in all limb leads is of unfavorable[28] but not necessarily of immediately serious prognostic significance. The low voltage curve of myocardial infarction may persist indefinitely after more or less complete clinical recovery. It seldom returns to normal. Low voltage apparently bears no relationship to low amplitude of the QRS complex in chest leads. In the majority of cases exhibiting a low voltage curve, the precordial QRS complex was of normal amplitude. Low amplitude of the QRS complex in chest leads most commonly was the result of improper placement of the precordial electrode. Usually, when this electrode was placed beyond the left heart border the resulting chest lead was dwarfed; the right arm to precordium lead appearing as a modified Lead I, the precordium to left leg lead appearing as a modified Lead III. In such instances, with proper technique, a chest lead with QRS complexes of wide amplitude was obtained. A low voltage electrocardiogram of a man in his forties, without previous cardiac complaint, suggests infarction, even in the absence of pain or other manifestation thereof, and should be so considered until proven otherwise.

A reciprocal coronary T wave[26] as an associated change, aids in the diagnosis of coronary occlusion, as does the low voltage curve and large P_2 wave.

SUMMARY

The incidence of myocardial infarction was greatest during the fifth decade of life; its occurrence being greater in men than in women.

The graphic diagnosis of coronary occlusion can be established with a high degree of accuracy in most instances.

The majority of occlusion curves readily fall into the well established classic groups; localization of the area of infarction by means of these typical patterns being accurately determined in a large percentage of cases.

Aside from the characteristic graphic alterations of occlusion, associated, less typical, changes occur with sufficient frequency to be of definite assistance in diagnosis.

Proper evaluation of a large P_2, reciprocal coronary T wave; the sudden occurrence of a low voltage curve, of ventricular tachycardia, auricular fibrillation or flutter, a conduction disturbance, T wave reversal, or a huge T wave in chest leads, with or without reversal of polarity, is often helpful. It frequently aids by preventing an atypical infarction from being overlooked; the more typical changes of occlusion being minor or absent. Chest leads, although indispensable, are essential for diagnosis in only a relatively small number of cases. Their limited usefulness emphasizes the importance of careful evaluation of limb lead changes whenever a coronary occlusion is suspected.

The diagnostic importance of serial curves is emphasized. The more widespread recognition of their value in the study of myocardial involvement represents the most valuable recent advance in the clinical application of electrocardiography.

SIGNIFICANT DATA

Graphs Recorded	*4,351*	*Males*	*274*
Patients Examined	3,879	Females	71
Graphs Selected	668	Total	345
Occlusion Curves	*350*	*Ambulatory*	*98*
Initial Occlusion	345	Hospital	104
Recurrent Occlusion	*5*	*Home*	*148*

Table 2

Incidence by Decades	1st 0	2nd 1	3rd 6	4th 78	5th 137	6th 90	7th 34	8th 4	9th 0
Records per Patient	*1* 182	*2* 100	*3* 32	*4* 14	*5* 12	*6* 3	*7* 2	*8* 3	*9* 2

Table 3

Occlusion Type	Curves Total	ST Displacement With	Without	Seasonal Coronary Occlusion		Incidence of Occlusion	
T_1	186	26	160	Oct.	33	Apr.	27
Q_3T_3	112	38	74	Nov.	24	May	22
Q_1T_1	22	7	15	Dec.	32	June	26
T_3	14	2	12	Jan.	44	July	27
Lateral	6	6	0	Feb.	32	Aug.	23
Unclass.	10	4	6	Mar.	43	Sept.	17
Total	350	83	267		208		142

CHEST LEADS

Type of Curve	Total	T_1	Q_3T_3	Q_1T_1	T_3	Lat.	Uncl.
Normal	128	25	84	3	4	4	8
Abnormal	222	161	28	19	10	2	2

Magnified In 193 cases, but for diagnosis, were of
No Help In 184 instances.
Helpful In 29 without typical limb lead change.
In 9 magnified & also aided diagnosis.
Total Cases 38 chest leads were of assistance.
Essential In 19 patients, they were likewise
Helpful In 19 instances, whereas, they gave,
In 312 cases, no diagnostic assistance.

ASSOCIATED GRAPHIC ABNORMALITIES

E.K.G. Change	Total	T_1	Q_3T_3	Q_1T_1	T_3	Lat.	Unclas.
L. A. D.	255	130	92	14	9	4	6
R. A. D.	10	7	0	3	0	0	0
Large P_2	197	112	56	13	6	4	6
Low Voltage	67	45	9	7	2	2	2
Reciprocal T	109	55	40	10	3	0	1
Auric. XS	9	6	3	0	0	0	0
A-V Nodal XS	8	3	3	2	0	0	0
Vent. XS	19	11	7	1	0	0	0
Auric. Fib.	7	6	1	0	0	0	0
Auric. Flutter	2	1	0	0	1	0	0
Auric. Tach.	0	0	0	0	0	0	0
Nodal Tach.	1	0	1	0	0	0	0
Vent. Tach.	7	5	2	0	0	0	0
Prolonged P-R	16	8	1	4	0	2	1
Dropped Beats	2	1	1	0	0	0	0
Intrav. Block	16	8	2	4	1	1	1
B. B. Block	3	3	0	0	0	0	0
Comp. Block	1	0	1	0	0	0	0

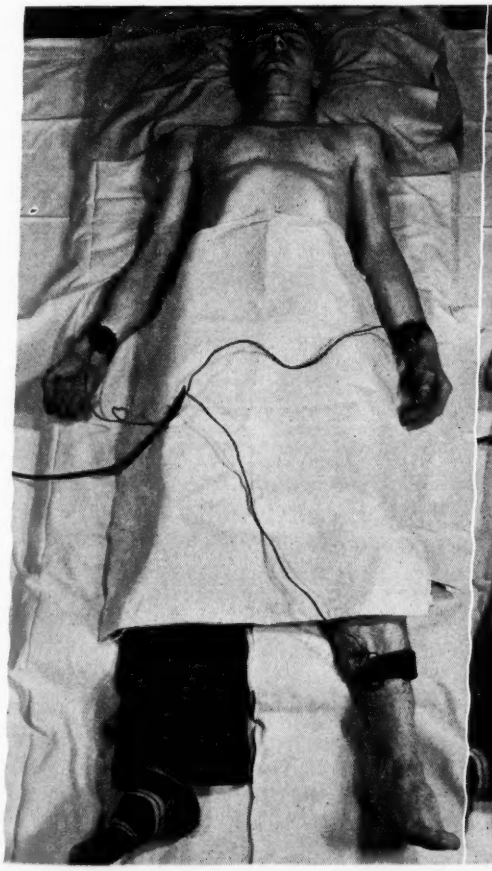

Fig. 1. Routine technique for recording limb leads.

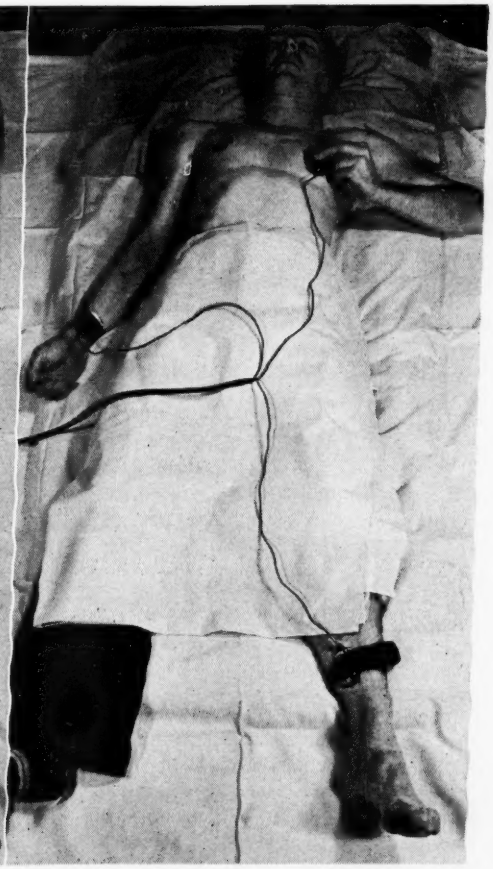

Fig. 2. Simplified technique for recording chest leads.

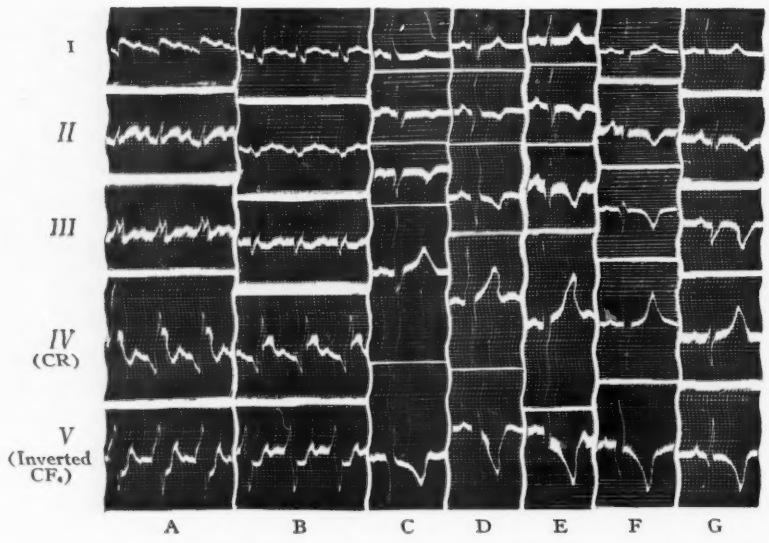

Fig. 3. (A and B) Early curves of anterior (apical) infarction. (C, D, E, F and G) Typical Q_3T_3 curves of posterior infarction.

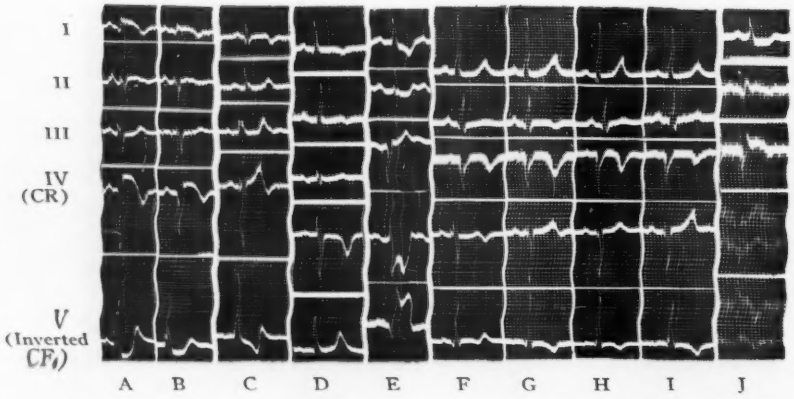

Fig. 4. (A, B and C) Typical early curves of anterior infarction. (D) Late curve of anterior infarction. (E) Lateral infarction curve. (F, G, H and I) *Serial curves 1, 10, 30 and 71 days following posterior (basal) infarction. Polarity* of $T_{1,3}$ is reversed in the initial record. (J) Typical *early* Q_3T_3 curve 21 days *after attack and 12 hours before death. Although 60-cycle interference, due to* open wires in an old home, could not be eliminated, the graph is dependable for *diagnosis.*

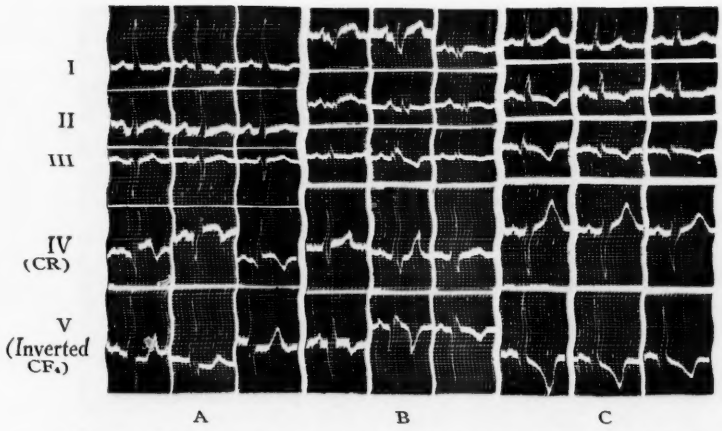

Fig. 5. Serial curves: (A and B) of anterior infarction, (C) of posterior infarction.

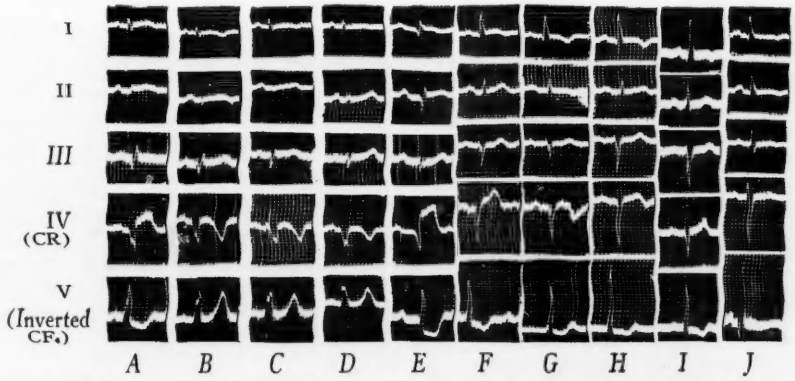

Fig. 6. (A) 12 hours (B) 35 days (C) 55 days and (D) 91 days after an anterior infarction. In active practice 5 years later. (E) 6 hours after a T_1 infarction and 2 hours before death. (F, G, H and I) curves 1, 28 and 55 days and 4 years after an anterior infarction. (J) Persistent R_4 and Q_3 in T_1 curve.

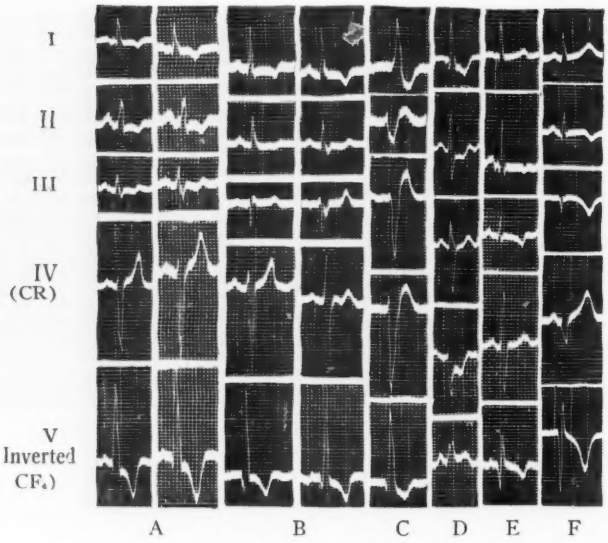

Fig. 7. (A) Recorded 1 and 22 days after infarction. $T_{1,2}$ contour sufficient for diagnosis. (B) T_1 contour of the initial record is suggestive and $T_{1,3}$, 2 weeks later, is of coronary contour. No diagnostic change in chest lead; R_4 and Q_5 persists. (C) Fundamentally the changes here are those of intraventricular block. The marked S-T interval displacement in all leads, per se, is not diagnostic of occlusion. Serial curves were essential. (D) Graphic changes commonly associated with lateral infarction. (E) Atypical curve of a posterior basal infarction. (F) Typical curve of a posterior basal infarction.

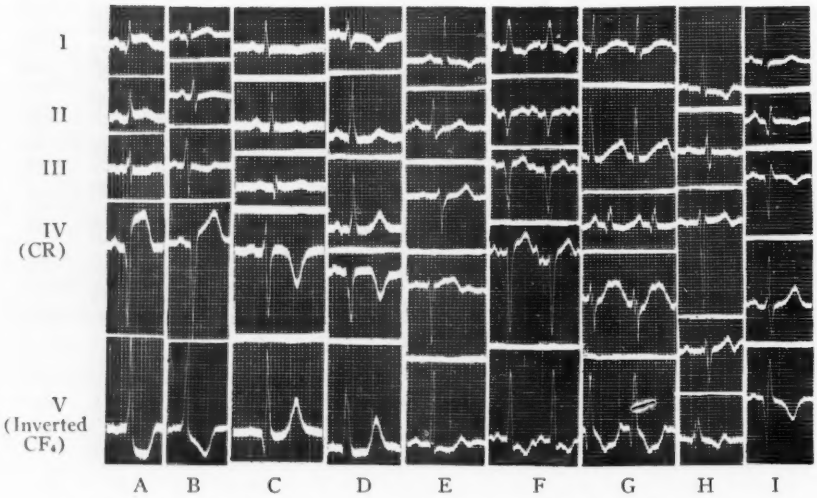

Fig. 8. (A and B) Early anterior infarction curves with typical alterations. (C) T_1 curve with persistence of R_4 and Q_5. (D) Late curve of anterior infarction with typical changes in Leads I, IV and V. (E and F) Other T_1 curves. (G) Initial graph following anterior infarction. (H) Graph following a severe anginal attack in a patient with arterial hypertension as subsequently proven by serial curves. (I) Late Q_5T_5 curve.

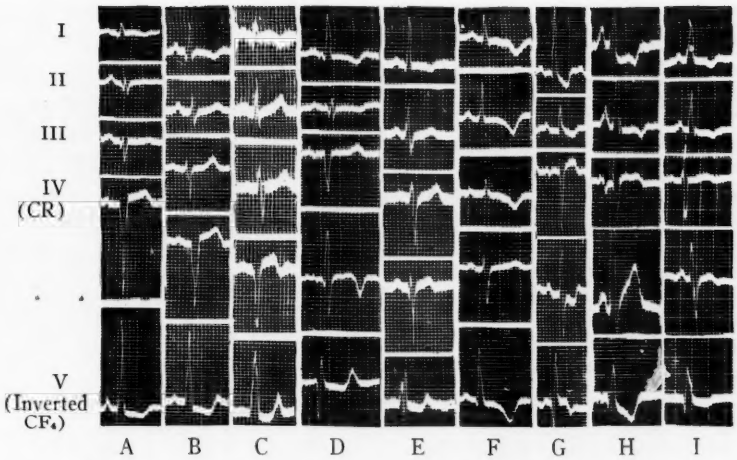

Fig. 9. (A) Chest leads simply magnify the diagnostic T_1 change. (B and C) Late T_1 curves with chest leads of typical contour. (D) Late curve of anterior infarction with persistent Q_5 and $T_{4,5}$ of reversed polarity. (E) Late T_1 curves with absent R_4Q_5 and T_5 of reversed polarity. (F) Combined infarction, female, age 27 years. Note chest lead contour. (G) Early Q_3T_3 curve. It simulates a curve of lateral infarction. (H) Unusual infarction curve with subsequent curve (I) 3½ months later.

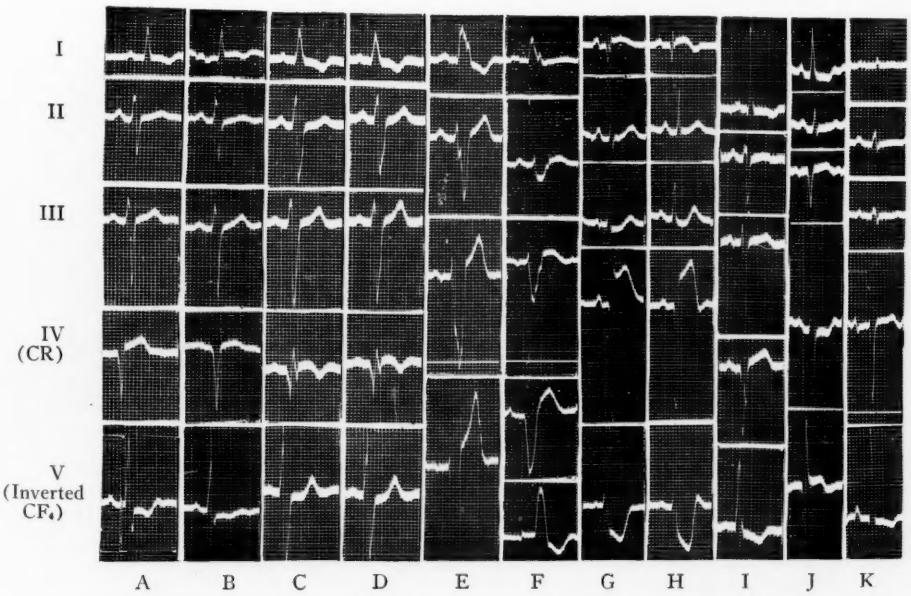

Fig. 10. (A) Curve 18 hours after an acute occlusion and 2 years after the original anterior infarction. (B) Graph 10 days after (A). (C) Recorded 1 day after a third attack and 21 months after (B), while (D) was recorded 23 days after (C). (E and F) recorded 1 and 14 days after an acute attack of chest pain. (G and H) Early T_1 occlusion curve. (I) Late T_1 occlusion curve. (J) Lateral infarction curve. (K) Low voltage curve in a man, age 41, without previous complaint. Chest leads suggest infarction as basis.

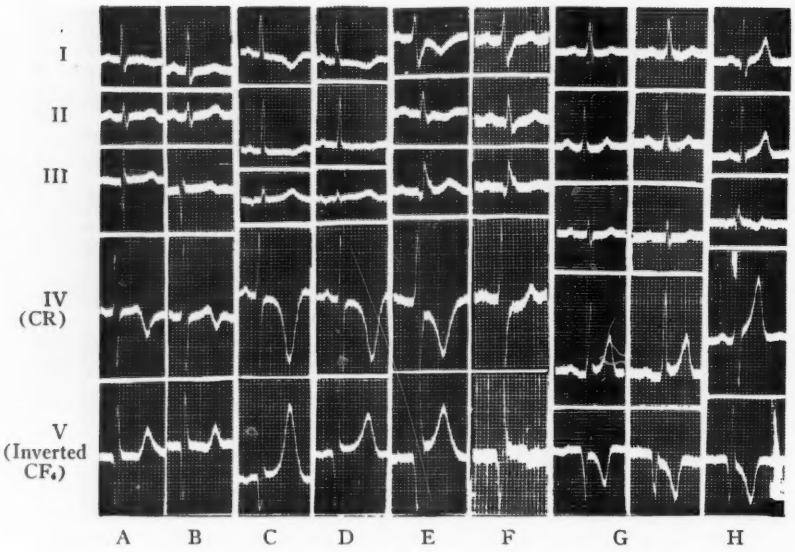

Fig. 11. (A) $T_{1,4,5}$ suggest occlusion; T_1 of (B) recorded 3 days later, was misleading. The patient died during a third and more severe attack the following day. (C and D) Anterior infarction curves with persistent R_4Q_5 and large T waves of reversed polarity. (E) Lateral infarction curve with large T wave of reversed polarity and subsequent curve (F) 35 days later. (G) Curve following anginal attack with subsequent curve, 2 weeks later, to eliminate possible infarction. (H) Large $T_{4,5}$ in curve of athlete without symptoms or findings of organic disease.

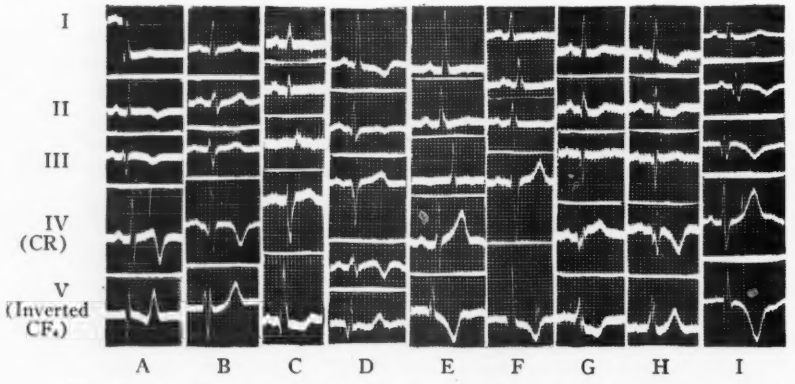

Fig. 12. (A) $T_{4,5}$ of reversed polarity in a Q_5T_3 curve. (B) Chest leads are at times essential for the early diagnosis of occlusion. (C and D) Persistent R_4Q_5 in T_1 infarction curves. Note $T_{4,5}$ contour. (E) Q_5 of 1 mm. and R_4 of 11.6 mm. with anterior infarction curve. (F) T_1 curve with persistent short R_4Q_5. (G) Graph 1 day and (H) 15 days after infarction. (I) Q_3T_3 infarction curve. S-T_3 slightly depressed.

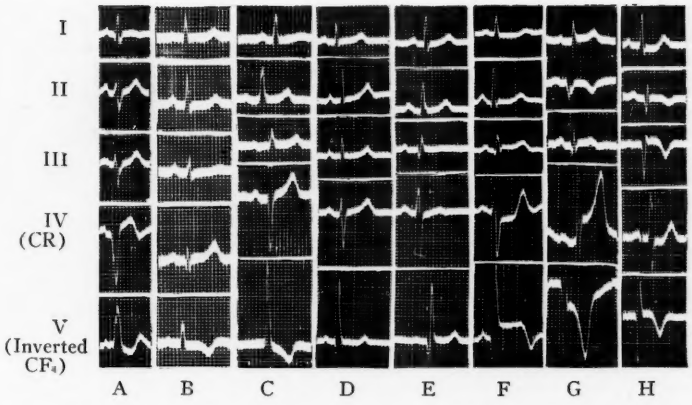

Fig. 13. (A) Diagnostic minor T_1 change is magnified in chest leads. (B and C) Absent R_4Q_3 in graphs recorded as part of routine examination in women, ages 46 and 35 years, without symptoms or findings of organic disease. (D and E) T_3 of reversed polarity in curves from adult males without symptoms or findings of disease. (F) $S\text{-}T_{1,2}$ displacement suggest posterior infarction. Chest leads suggest lateral infarction. (G) Large $T_{4,5}$ with atypical S-T interval displacement. (H) Q_3T_3 curve of posterior infarction.

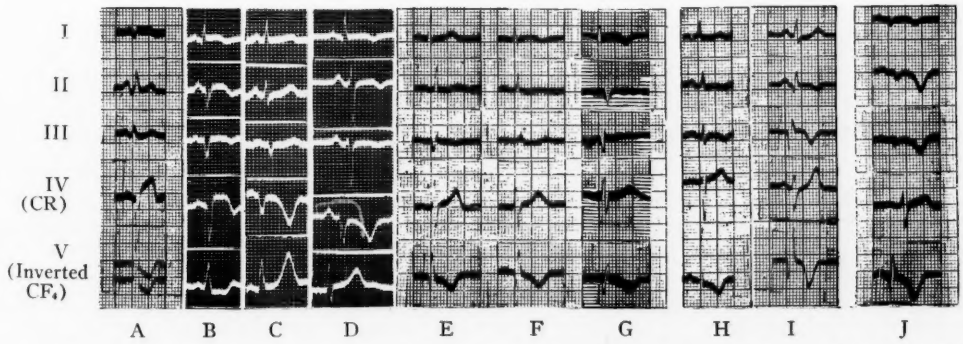

Fig. 14. (A) T_1 contour, in spite of 60-cycle interference, suggests occlusion; chest leads being confirmatory. (B) Probable anterior infarction; Q_3T_3 representing antecedent coronary disease. (C) Note that T_1 contour suggests beginning inversion. Chest leads essential for early diagnosis. (D) Limb leads diagnostic of infarction. Chest leads simply magnify. Note large P_2 in this and preceding curves. (E) Record before (F and G) after an anterior infarction. Chest leads remained unaltered. (H) T_3 curve of a recent posterior infarction. Chest leads suggest an old (healed) anterior infarct. (I) Early Q_3T_3 curve with S-T interval displacement in limb leads and large T wave in chest leads. (J) Probably a combined anterior and posterior infarction or a right coronary occlusion in the presence of a definitely compromised left coronary circulation.

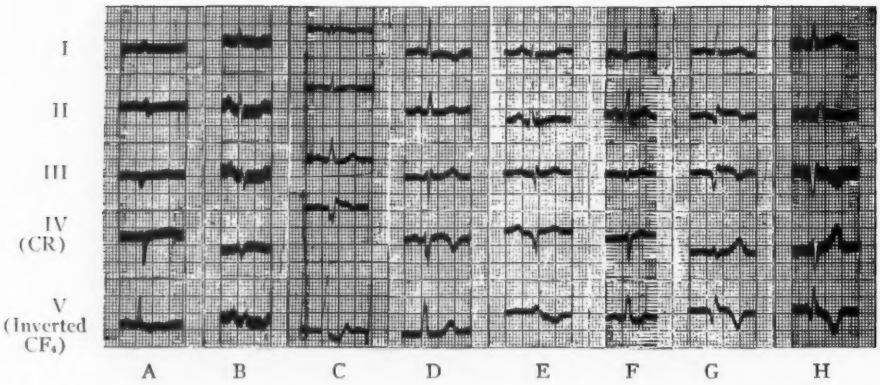

Fig. 15. (A and B) Low voltage and T_1 contour confirmed by chest leads. (C) The minor $T_{1,2}$ change is magnified in chest leads. (D and E) T_1 contour is not entirely typical but is supported by chest lead changes. (F) Absent Q_3 and T_3 of reversed polarity as initial changes suggesting occlusion. (G) Early Q_3T_3 infarction curve. S-T_3 is elevated. (H) Late Q_3T_3 infarction curve.

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PROBLEMS IN NUTRITION IN ALLERGY: REPORT OF A CASE OF OPTIC NEURITIS ON AN ALLERGIC BASIS

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Until recently the only types of ocular allergic manifestations described were those associated with seasonal hayfever, certain cases of vernal conjunctivitis and a few cases of perennial non-inflammatory conjunctivitis. Occasionally cataract in young individuals has been thought to be on an allergic basis, and sympathetic ophthalmia is considered by some authorities to be a manifestation of allergy. The retina and optic nerve are possible sites of reaction but only three case reports of this type have been found, one by Bedell[1] of a man who developed edema of the nerve head and retinal hemorrhage as part of a serum reaction following tetanus antitoxin; a patient reported by Coca[2] who had simple edema of the left macular region each summer in conjunction with gastro-intestinal allergy and migraine; the third case was that of a physician, reported by Plumer,[3] who had edema of nerve head and following the eradication of several suspicious foci of infection (dental and tonsilar) had a gradual and complete recovery, but several weeks later had a recurrence after the ingestion of peanuts. He was completely relieved for six years following the elimination of several foods.

It is possible that many patients who have had unexplained attacks of diplopia, permanent or temporary blindness, ophthalmic migraine or lesions of the retina may be hypersensitive. I wish to report a case of this type due to food allergy and to bring out some of the nutritional problems involved.

The patient, a Mother Superior aged 37, was referred for sensitization tests (to H.C.H.) on July 1, 1937. Her complaints were loss of vision in the left eye which had occurred six years previously, attacks of clouding of vision in the right eye of about the same duration, and frequent episodes of indigestion since early childhood. She had always felt tired but this seemed to have no relation to orbital pain or menses.

The eye symptoms began on February 26, 1931. The patient awakened "seeing stars" and feeling very dizzy. She assumed she was having a bilious attack and so returned to bed. As resting only made the symptoms worse she decided to go for a walk. While walking, sand blew into the right eye and when this eye was closed stars were seen only in the left eye. No blurring of vision or other symptoms referable to the eye had been experienced previous to this date. The physician who was then consulted believed the condition was due to a hemorrhage into the left eye and at his suggestion heat was continuously applied. The vision, however, progressively decreased so that in two days the patient became blind in the left eye.

Three months later, May 10, 1931, similar but less marked symptoms were experienced in the right eye. As the patient stooped over there was a clouding of vision and a marked increase in the size of the blind area. An ophthalmologist reported at this time that there was a bilateral optic neuritis and a diagnosis of multiple sclerosis was made. The following report was given by him.

*Presented before the Section on Eye, Ear, Nose and Throat, 101st Annual Meeting of the Illinois State Medical Society, Chicago, May 20, 1941.

The right vision was 0.6 and left vision nil with bilateral optic neuritis with choked discs. The right vision gradually cleared and the left disc became atrophic, secondary in type. Twelve injections of intravenous typhoid vaccine were given, and these were complicated by multiple arthritic joint pains which cleared up gradually. Spinal fluid was negative. No foci of infection were found. The patient was last seen by him in 1932. The eye symptoms gradually decreased in intensity although slight clouding was noted frequently.

The patient had always had difficulty ingesting milk and eggs. Ice cream regularly caused violent abdominal pain and usually hives; eggs were distasteful and were refused; raw apples caused a foaming about the mouth and marked bloating, and there was a history of several other minor food idiosyncrasies. Recently the patient had tried to build up her general health by taking eggs and milk and it was during this time that the right vision began to blur and orbital pain appeared. At the suggestion of one of us (B.C.) she markedly reduced the intake of milk and eggs and obtained considerable relief from her eye symptoms. Blurring of vision regularly followed the ingestion of milk or eggs in any appreciable quantity, the intensity and duration of the symptoms depending upon the amount ingested.

Because of the definite dietary history the patient was at once given detailed instructions as to the rigid elimination of eggs and milk and tests were started. Scratch tests were negative and intradermal tests were soon discontinued because of the excessive irritability of the skin, there being a positive reaction even to the control test.

Physical findings were esssentially negative. The blood pressure was 112/70. Blood examination showed hemoglobin 78 per cent, 3,840,000 red cells, and 8,400 leukocytes, with a differential distribution of polymorphonuclears 60 per cent, lymphocytes 35 per cent, monocytes 4 per cent and eosinophils 1 per cent. There was an absence of free acidity and a total of 10. The Wassermann and Kahn reactions were negative.

The eye findings (B.C.) at this time were as follows: The right vision was 1.5-1 and the left vision was hand movements at one foot. The right pupil reacted promptly to light and convergence; the left pupil reacted slightly. The consensual reaction from right to left was present but was reduced from left to right. The right disc markings were indistinct with moderate pallor and the media clear. The left disc was atrophic, the margins and vessels blurred and the media clear. There was enlargement of the blind spot in the right eye but no central scotoma could be elicited for colors or white test objects. The left field could not be outlined. (Figs. 1 and 2)

Liver extract by mouth was not tolerated so ferric and ammonium citrate was given, together with hydrochloric acid and calcium gluconate.

After one week she reported that she was feeling much better generally. The right eye was comfortable, with vision of 1.5. The blind spot at this time with 1.0/1000 test object was almost normal in size.

In six weeks the patient returned saying that she was much improved. She had remained free from all symptoms and had had only one slight attack of blurring of vision following the ingestion of meat seasoned with onion. Calcium gluconate caused a marked sensation of bloating and so calcium lactate was suggested. The patient was instructed to return in six weeks if symptom free for oral desensitization to milk.

She was not seen again for six months. In the interim she had remained free from all symptoms and had gained five pounds. She had been unable to take milk even in small amounts in cooked foods, and all attempts at oral desensitization to cow's milk and canned milk had been unsuccessful; blurring of vision occurred regularly after the first dose. Dicalcium phosphate was acceptable in seven and one-half grain dosage, but she was unable to take any form of cod liver oil concentrate. Desensitization to fresh and canned goat's milk was likewise unsuccessful.

During the next three years the patient remained free from all symptoms, and was not seen again until October 26, 1940. A hysterectomy had been done seven months previously and recovery was excellent. During all this time the diet had been rigidly followed, the only change being an increase in the intake of pastry and bread. The only known added food intolerances were to rare beef, especially steak, which caused a "lump-like" sensation in the abdomen, and to an excess of orange or grapefruit which caused nausea, belching and a slight blurring of vision.

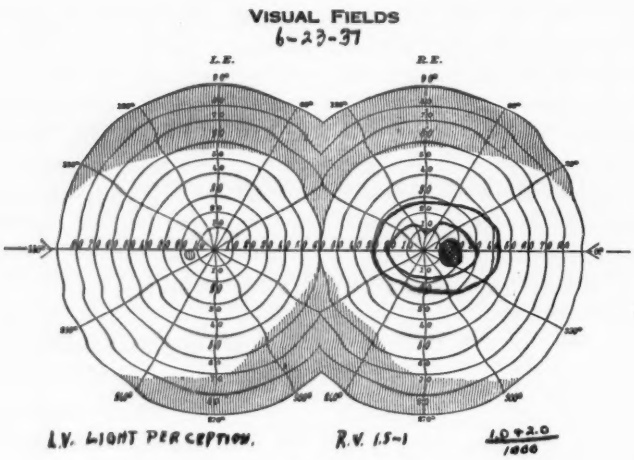

Figure 1

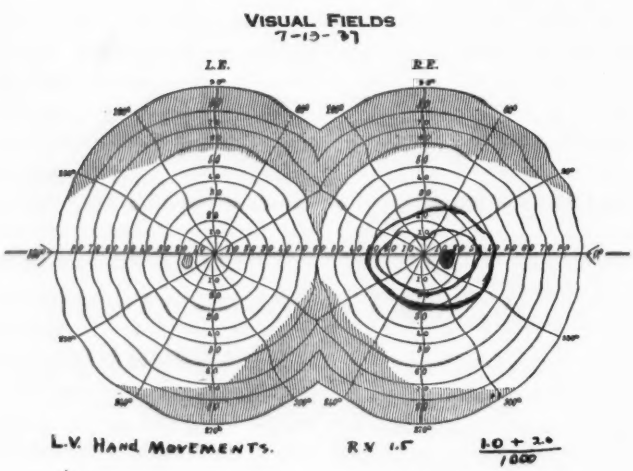

Figure 2

For the preceding two months, at intervals of one month and for periods of one week there had been a feeling of increased general tension and a fairly marked recurrence of eye symptoms even though the diet had been rigidly followed.

At this time she reported to one of us (B.C.) for correction of blurred vision and presbyopia. The right vision was 1.5 and the left vision was hand movements at three feet. Right Jaeger was 0.50 at 36 cm. which was corrected to Jaeger 0.37 at 35 cm. with +1.50 and +25 axis 180. The discs, fundi and media remained the same.

Because her symptoms had occurred at about the expected time of a menstrual period, it was thought that endocrine therapy was indicated and theelin was given. Ten thousand units of theelin caused a violent reaction in the form of nausea, vomiting and generalized aching of three days' duration on three occasions, but 2,000 units every three days was well tolerated. This, in addition to the elimination of new food sensitivities suggested by the history, that is cottonseed, citrus fruits and beef, has afforded the patient complete relief. The diet has been supplemented by acidulin, dicalcium phosphate, viosterol, B-scorbic acid, iron, and a series of liver injections at three to four month intervals. The only evidence of inhalant sensitivity was that of hoarseness which was of six months' duration, and which disap-

peared completely following the elimination of feathers.

In January, 1941 her blood calcium was 11 mgs. per 100 c.c., phosphorus 3.75, and the blood eosinophilia has varied from one to two per cent. Passive transfer tests done in January 1941 were entirely negative to milk, casein, lactalbumin, eggs and a wide variety of common foods. On the management outlined the patient has remained free from all symptoms, according to a letter received on May 3, 1941.

SUMMARY

This patient has a complete optic atrophy in the left eye. There have never at any time been any scars to indicate a hemorrhage and the symptoms we believe have been due either to angiospasm or retrobulbar neuritis. Complete freedom from transient neuritic symptoms in the right eye has followed the elimination of the foods to which the patient has been found sensitive. The gastro-intestinal symptoms represent the primary allergic response with the eye symptoms secondary.

CONCLUSION

The etiology of optic neuritis is varied, but in cases which do not respond to the usual methods of therapy allergy should be considered as a causal factor.

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LAWSUIT DANGER

It's a wise precaution to have the patient either lie down or sit in an armchair when you take a blood sample. Reason: Patients occasionally faint during this procedure.

Thus, a colleague was taking a sample from a woman patient recently, when suddenly she fainted. She fell from a stool, hitting her head on the corner of a table. It *might* well have meant a tough and expensive lawsuit.—M.D., New York.

CERVICAL POLYPS

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The little things in life frequently fail to attract attention either because they are apparently insignificant in size and importance or because they are so obvious that they are not considered worth while. To cite one important example of the less obvious, we might recall that early cancer is microscopic in origin. And yet this disease assumes large proportions. Because of the interest of the informed public in matters of hygiene and public health and more especially, in such programs as maternal welfare and cancer control, we, the medical profession, should constantly be on the alert to detect these little growths in which cancer might arise in the hope that we may diagnose this malady in its earliest stages. Our subject then is apropos because malignancy in these lesions is rare and because cervical polyps are easy to detect if we train ourselves in a simple routine and never deviate from it.

Definition. — Cervical polyps are small tumors varying in size from a few millimeters to several centimeters in length. They are usually tongue-shaped, sometimes sessile, but more often pedunculated; have a smooth surface, are bright red, although occasionally they are cyanotic, and are attached to the cervical mucosa or slightly above the internal os in the uterus or to the vaginal portio.

Frequency. — The frequency varies with the class of patients and the thoroughness with which the cervix is examined. Geiger found 32 cases in 2048 gynecologic patients in the Cook County Hospital Tumor Clinic, an incidence of 1.5 per cent. Israel found 117 patients with cervical polyp in a five year period among 3900 hospital patients or 2.4 per cent; while Henriksen found 91 cases in 1500 gynecologic patients studied — an incidence of 6 per cent. The general incidence is about 3.5 per cent. The age incidence varies; they have been found as early as 21 months of age, as in a case reported by Gibb, and as late as 80 years of age, but their greatest frequency occurs in the decade from

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forty to fifty years. They are most often single although they may be multiple. Fluhmann, in 100 cases analyzed completely, found single polyps in 95 per cent. They are believed to occur more often in the parous than in the nulliparous. In Israel's series, 9 of 117 patients had had children; although Henriksen states that they are twice as frequent in women who have never borne children. My own experience has been that they are more frequent in women who are pregnant or who have borne children than in those who have never been pregnant.

Etiology. — Cervical polyps are true neoplasms. They may arise from normal tissue but more frequently do so at the site of a previous lesion, or in association with pregnancy. They may take origin from a pre-existing chronic inflammation as, for example, at the site of a chronic cervicitis or in association with pregnancy because of an hyperemia and edema, or because of pregnancy hormonal stimulation. Chronic inflammatory reaction and trauma seem to be the primary etiologic factors. Geist is of the opinion that cervical polyps are inflammations similar to nasal polyps associated with infection and sinusitis. This is also the opinion of Struthers, Erdman and Morris with reference to polypoid growths in the gastro-intestinal tract.

Symptoms. — There are two cardinal symptoms of cervical polyps; these are vaginal bleeding and leukorrhea. The former is usually metrorrhagic in character, although occasionally it may be menorrhagic. The vaginal discharge may consist of clear mucus or occasionally may be purulent. The symptoms may subside without treatment only to recur as a result of inflammatory reaction, interference with their blood supply or trauma. Pain, cramps and backache are usually absent.

Pathology. — *Gross:* We have stated that cervical polyps are true neoplasms. They are soft, friable, strawberry-red and occasionally cyanotic. They bleed easily and the tip may occasionally be infected or necrotic. The polyp can be seen protruding from the cervical canal or it may be attached directly to the portio. The direction of growth is usually downward, although Lifvendahl reports a case in which the direction of growth was upward and into the cavity of the uterus.

Histology: Most polyps are glandular in character and also mucous-secreting. They tend usually to reproduce the exact character of tissue from which they take origin. If they originate from the mucosa of the cervical canal, the epithelial covering consists of high columnar or cuboidal cells similar to the mucosa of the cervical canal. If they arise from the portio, the epithelial covering consists of stratified squamous epithelium. The stroma is thin, edematous, and frequently contains cervical gland-like structures; these may be simple, racemose or markedly branched. The cervical epithelium is secretory in character and frequently these glands become cystic and the epithelium lining such cysts may be flattened. In some cases the epithelium surrounding the polyp may be squamous, having replaced the original columnar epithelium. This may be a true metaplasia or a benign type of so-called epidermalization or epidermoidization. Such changes have been described by Fluhmann, Novak and Te Linde. The diagnosis of malignancy frequently hinges on these points. There are numerous blood vessels in the stroma. These are frequently congested and account for the bleeding. The tip of the polyp when gangrenous may contain evidences of inflammation of a chronic nature, usually consisting of round cell infiltration. The base of the polyp has similar changes but in addition, in those rare instances where cancer has been found, these may be continuous with a carcinoma of the cervix.

Polyps which arise high in the cervical canal near the internal os or slightly above it may reproduce an endometrial pattern. This may consist of uterine glands resting on a uterine type of stroma and may also reproduce the changes associated with the menstrual cycle. Clinically, with this type of polyp, the vaginal bleeding may be menorrhagic in character. Sometimes pathologic changes of another nature may be found. In rare instances tuberculosis, and in about one per cent of all polyps subjected to microscopic examination, cancer has been found. Carcinoma in polyps has been reported by Bishop, Fluhmann, Geiger, Heaney, Novak, Stein and Te Linde. During pregnancy decidual reaction in the stroma has been reported by Martines and Miller. This is interesting because the polyp partakes of a decidual reaction. Usually cervical mucosa does not participate in this reaction.

This parent type of tissue apparently originated in the endometrium. Sarcoma in cervical polyp has been reported by Eden and Lockyer.

Diagnosis. — On vaginal examination those polyps which protrude from the cervical canal can be palpated and occasionally made to bleed. Where there are multiple polyps in the cervical canal and not palpable to the examining finger, diagnosis may be difficult. Speculum examination reveals the growth at once. In cases where a growth is suspected high in the cervical canal Curtis recommends bisection of the anterior lip of the cervix. This is a hospital procedure and requires also some upward dissection of the bladder. All polyps must be subjected to microscopic examination to rule out malignancy and to detect other types of pathology. Polyps must be differentiated from cervical fibroids, erosions and other neoplasms, but microscopic examination will settle these points. During early pregnancy bleeding from a cervical polyp must be differentiated from threatened abortion; and in late pregnancy from placenta previa. Usually speculum examination together with the history will make the diagnosis.

Treatment. — Cervical polyps are frequently treated merely as an office procedure. They may be twisted off or removed by snare, cautery or curet. All of these methods are satisfactory; whichever method is employed it is important to remember that the polyp should be removed completely and the base carefully cauterized. It is well to point out that if the tip of the polyp is seized and crushed with a heavy instrument, pathologic examination is rendered difficult. To avoid this difficulty I sometimes employ a light weight ear wax tenaculum; this instrument has the advantage of having two small prongs facing in opposite directions. It can be applied lightly and only slight tension exerted without destroying the polyp for microscopic examination. It enables one also to reach for the base of the polyp, to remove it intact, and the base then can be satisfactorily cauterized. If bleeding is troublesome cauterization should be thorough but careful. Electrocauterization is more satisfactory than cauterization with silver nitrate. Packing is usually unnecessary.

In patients with multiple polyps high in the cervical canal, bisection of the cervix as mentioned above may be necessary. Such lesions may then be curetted by direct inspection and the cervix sutured.

Total hysterectomy may become necessary in cases of true carcinoma. Te Linde points out that many times on the basis of metaplasia or epidermalization, lesions which at first site appear to be cancer are really not malignant. To subject patients to radical hysterectomy would, therefore, add to the mortality of that operation. Should hysterectomy become necessary, the growth and the associated endocervicitis must be first treated thoroughly.

Radium therapy is suitable in proved cases of malignancy and also in patients who are poor operative risks. Radon needles or radium element may be employed. In patients subjected to radiotherapy the cervix should be examined at regular intervals and dilated if necessary to prevent accumulation of secretion.

Electrocauterization of the base of the polyp is very satisfactory. It may be repeated two or three times and it destroys the base in which carcinoma has been known to occur. Combined electrocauterization and radiotherapy may also be carried out in cases where it is deemed necessary and even for purposes of prophylaxis.

Polyps may be removed safely during pregnancy. The best treatment during pregnancy is removal by snare and cauterization. The more radical types of treatment mentioned above are usually not necessary except in extreme cases. Polyps found during pregnancy may exhibit a decidual reaction and are rarely if ever malignant.

All tissue removed should be subjected to microscopic examination and careful follow-up carried out.

CASE REPORTS

Case 1. — Mrs. L. P., aged 35, married five months, nullipara. Past medical and surgical history negative. Menstrual history regular. Present complaint: Leucorrhea and blood tinged vaginal discharge. General physical examination essentially negative. Vaginal examination: Tight introitus; urethra, periurethral glands and Bartholin glands normal. Uterus normal in position, small and freely movable. Cervix long, firm; external os closed; small polyp protruding from cervix. This was removed and the base was cauterized with a Post cautery.

Pathological Report: Polyp 1.5 cm. long x 0.3 cm. wide. Polyp contains endometrial tissue with glandular hyperplasia and cystic formations. Congested

stroma with marked inflammatory changes. No evidence of malignancy.

No recurrence. Patient well after five years.

Case 2. — Mrs. J. K., aged 47, married, para II, two spontaneous deliveries. Pain right side. Patient has a known ovarian cyst on right side. Relaxed pelvic floor; uterus freely movable and in normal anteversion-anteflexion. General physical examination negative. Cervical polyp protruding through external os which is slightly patent.

Pathological Report: Increase in blood vessels of polyp. Numerous glands in stroma. Glands lined by columnar cells. No malignancy. No recurrence after two years.

Case 3. — Mrs. E. H., aged 39. Pain on both sides of pelvis and backache. Past obsteric history: Three spontaneous deliveries. During the third pregnancy five years before patient had a cervical polyp removed. General physical examination negative. Perineum relaxed. Uterus in normal anteversion-anteflexion. External os patulous. Polyp about 1.5 cm. long protruding through external os. Polyp removed. Base cauterized.

Pathological Report: The polyp is covered with squamous epithelium, the basement of which is intact. Numerous glands in stroma lined by columnar epithelium. In some places a transitional type of epithelium is noted. No evidence of malignancy. Diagnosis: Benign polypus.

No recurrence after six months.

Case 4. — Mrs. A. W., aged 44. General physical examination negative. Three previous pregnancies. Vaginal examination revealed a cervical polyp. Dilatation and curettage of uterus and cervical polyp removed by curet. Pathological diagnosis: numerous tubercles and round cell infiltration. No recurrence and no evidence of tuberculosis elsewhere to date.

Case 5. — Miss L. K., aged 68. Cholecystectomy three years ago. Patient has had multiple fibroids. Never pregnant. Hysterectomy. Pathological diagnosis: Degenerated endometrial polyp with carcinomatous changes. No known recurrence after six months.

Case 6. — Mrs. M. F. Vaginal bleeding. Cervical polyp discovered on vaginal examination. Dilatation and curettage, and removal of polyp by curet. Pathological diagnosis: Early adenocarcinoma in polyp; nests of glandular tissue found with definite carcinomatous changes. Treatment: Fifty milligrams of radium (needles) inserted into cervix for twenty-four hours. No recurrence after six months.

SUMMARY AND CONCLUSIONS

Cervical polyps have been described as usually benign lesions. Their etiology, symptomatology and pathology have been discussed. Reference has also been made to the fact that rarely such lesions may be the seat of a primary or secondary carcinoma. They may also contain other types of pathology, such as chronic inflammation and tuberculosis. Emphasis has been placed on careful examination and removal, pathologic study and clinical followup. Treatment has been discussed and six typical case reports have been included.

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DISCUSSION

Dr. Mark T. Goldstine, Chicago: I think we should be very grateful to Dr. Serbin for his presentation of cervical polyps. This should sharpen our interest a little in this topic. Dr. Serbin has not left very much for me to discuss. About all I can do is to emphasize some of the points that he made and possibly add one or two of my own from my experience.

As he said, polyps are usually small. I do not know whether he said insignificant, but to me a polyp is like a foreign body in the eye: it is big until we get it out and know what it is and what it is going to do. They should be very carefully handled. They are interesting because there is such a variety of them. They often not only present very interesting histologic pictures but they lead us to other things. Several times in removing a cervical polyp it has led me to an old metal pessary put in from ten to twenty-five years before and forgotten. Occasionally we see a polyp with a long pedicle large enough so that it protrudes from the vulva. The patient thinks this is a prolapse and occasionally the physician thinks it is too.

The polyps that follow gestation are very interesting, particularly if they are removed in one's office. Those polyps when removed bleed profusely because their bases are very rich in blood supply, and when twisted off in the office it may mean a rapid ambulance ride to the hospital in order to check the bleeding. In that way they are very interesting.

The mucous polyps are usually benign but mixed up with a mucous polyp you may find a polyp form you have seen in some of Dr. Serbin's illustrations — the endometrial polyp. I do not think the polyp of any endometrial type is much influenced by hormones.

The histology of a polyp is very important, and the whole polyp should be examined. If the whole polyp is not examined, the base should be if there is any suspicion of malignancy.

Dr. Serbin pointed out that the early diagnosis of carcinoma is important. You can repeat that as often as you want to. The early diagnosis of carcinoma you miss is the one that bothers you.

Now about treatment. Early in my clinical work I came under the influence of Professor Zeit. Those of you who knew him knew how uncompromising he was with anything that smacked of malignancy, and when he examined a polyp and was fairly certain it was malignant, nothing would do in the treatment except panhysterectomy. I have followed out that course of treatment where I have been fairly certain of malignancy, and up to date I have no regrets about it. One advantage in removing a uterus of that kind is that when you get a recurrence the first one will come in the organ where it originally started. If you have a carcinomatous polyp and you get a recurrence, you usually get it in the uterus first. Particularly in the diagnosis of carcinoma it is not very pleasant at autopsy to find metastatic carcinoma that you can trace to overlooked early carcinoma of the cervix.

One other caution about polyp that may give you some distress is after hysterectomy where you leave the cervix. Occasionally you will have some bleeding. That bleeding is very frequently due to an overlooked polyp high in the cervical canal. So it is a good precaution to examine the cervix carefully, particularly for polyps, if you are planning to do a supracervical hysterectomy.

I have no argument with the use of radium or cautery. Any treatment that will give you a good result is all right, for non-malignant polyps. If you use radium in the cervix you should make a careful follow-up to dilate the cervix in order to prevent stricture.

Dr. William T. Carlisle, Chicago: I realize that Dr. Serbin's paper has to do chiefly with mucous polypi, but having seen three patients within the past five years who developed sarcoma as a sequel to fibroid polypi, it seems an opportune time to emphasize that possibility. One patient, aged 34, had a lemon sized polypus extruding through the cervix. Her essential complaint was bleeding. Histologic examination indicated a benign fibroid polypus. Three months after removal a larger polypus was removed also apparently benign. Six months later this patient had a generalized sarcomatosis.

Recurrent fibroid polypi should be looked upon with grave concern; in spite of the innocent histologic picture some of them become sarcomatous.

MENINGITIS WITH A DIABETIC COMA

WM. D. McNALLY, A. B., M. D.
CHICAGO

The following case presented some difficulty at first in arriving at a diagnosis because of the finding of sugar in the urine.

A well nourished young lady, E. C., aged 19, was in good health until December 14, 1940, when she complained of generalized aching of the joints and a slight headache. This occurred about one o'clock in the afternoon. The nurse, where the girl was employed, thought the patient was coming down with a cold and advised her to go home. She rode on a crowded bus for a distance of about seven miles and during this time said she had developed a period of sweating. Upon reaching home her headache became worse, she was drowsy, then semiconscious. The writer was not called until ten o'clock the following morning and found the patient in a coma. Her mother said the girl complained of the headache as being chiefly in the frontal and occipital regions, and that the previous afternoon she had been very irritable and had become progressively weaker. There was no history of recent injury.

Although she had been in an automobile accident the previous summer and had struck her head hard against the windshield, she had recovered completely from that injury. There was no recent illness with the exception of a sore throat about a month previous. Had measles and chickenpox in childhood. There was no infection of the ear at any time. She had been advised to have an abscessed tooth removed several months previously but this was not done. The removal of tonsils and adenoids at the age of six was the only surgery the patient had had.

She was admitted to St. Joseph's Hospital on December 15, 1940. System inventory was essentially regular with the exception of the previously described symptoms. Family history was negative for epilepsy, diabetes, heart disease, tuberculosis, and cancer. Physical examination shows a well developed young girl who appears acutely ill and is comatose. Moans when moved. There is no evidence of injury to the head. The pupils are small and react to light and accommodation. The right eye shows a paresis of lateral rectus. There is no discharge of blood from either ear. The drum membranes appear normal. There is no discharge from the nose. At the time of this examination it was impossible to open the mouth which was clenched tightly for seventy-two hours. The face showed a left sided weakness. No evidence of a goiter or adenopathy. A marked stiffness of the neck was present. The heart rhythm was regular with normal tones. There was normal resonance of the lungs and normal sounds. The abdomen was soft, no evidence of masses or tenderness. No edema of extremities, no evidence of injury or paralysis, and no joint pathology apparent. There is no apparent paralysis and no joint pathology apparent. There is no apparent paralysis or paresis of any extremity. Paresis of the fourth nerve on the right and of the seventh on the left side is present. The deep reflexes are equal and active; the abdominal is absent; Babinski is positive, Gordon, Oppenheim, and Hoffman — negative. The menningeal signs are all markedly positive. Neck is very stiff and resistant to flexion. Hernig's sign is positive. Brudzinski's neck and leg signs are present.

An examination of the urine showed a 3 plus sugar. Because of this fact, the patient was immediately given 15 units of insulin, but her condition remained unchanged. After blood was taken for culture, 2000 cc. of normal saline solution was administered, also 2 grams of sodium sulfapyridine and 1 grain of sodium luminal for restlessness. On the fourth day she was given 15 grains of sulfapyridine every four hours, and 1 grain of sodium luminal. On the sixth day the sulfapyridine was reduced to 0.5 gram every four hours. On the seventh day the sulfapyridine was stopped because the patient had become cyanotic.

Even though there was a history of no accident, it was thought advisable to have an x-ray of the head. Regular views of the skull showed dense, thick, skull tables. No evidence of increased inter-cranial tortion and the sella appears normal. Regular views of the mastoids show many average sized cells, all of which appear to be air containing. There is no x-ray evidence of clouding of any of the mastoid cells, and no definite evidence of bone destruction.

The patient remained comatose for seventy-two hours. Shortly before she regained consciousness, Dr. Archibald Hoyne was called in consultation, who gave his opinion that it was a meningitis of otitic origin, notwithstanding the fact that there was no discharge from the ears.

After the third day of hospitalization, the administration of the saline solution was stopped, urine and blood examinations were made. The blood sugar was normal and urine negative. Her jaws began to loosen so that she was able to take water by mouth. She would awaken at intervals of 20 to 30 minutes, at which time she grimaced and clamped her jaws tightly, also kicked the legs and rubbed her face alternately with the hands as if to brush something away. She did not respond when called by name. The pupils were wider and reacted somewhat to light.

LABORATORY: Blood Counts: W.B.C.'s 26,800 on entrance; December 18, R.B.C.'s 4,630,000, W.B.C.'s 8,400; December 21, R.B.C.'s 4,400,000, W.B.C.'s 6,650. Spinal Fluid: W.B.C.'s 12,450, Polys 95%, Lymphocytes 5%; Smear: no organisms seen. Blood Culture: No growth after twenty-four hours incubation. Urinalysis: December 16, Color — yellow, specific gravity — 1.035, albumen — trace, sugar — 3 plus; December 20, specific gravity — 1.019, albumen — trace, occasional pus cells, many epithelial cells, sugar — negative; December 22, sugar — negative. Serology: Kahn — negative. Cultures: Culture of spinal fluid on blood-agar shows no growth after two days incubation. Blood cultures show no growth after two days incubation.

COMMENT

The finding of sugar in the urine in an unconscious patient would lead one to believe that he was dealing with a diabetic coma; however, all the symptoms pointed to a meningitis. The diagnosis was also questioned when the spinal fluid and blood culture gave no growth after two days. Another interesting feature of this case was the fact that it was impossible to open the mouth which was clenched tightly for seventy-two hours and the quick response the patient made to sulfapyridine.

OPPORTUNITIES FOR YOUNG PHYSICIANS IN CIVIL SERVICE

Until recently, the opportunities for a career as a Federal medical officer, other than those afforded in the commissioned services of the Army, Navy and Public Health Service, have not received due consideration by the majority of the medical profession in the United States.

Provisions have been made for the employment of physicians in both the commissioned and civilian services by certan laws enacted by Congress and Executive Orders issued by the President. During non-emergency periods approximately the same number of physicians are employed in the classified civil service through open competitive examinations under the provisions of the Civil Service Act and rules, as are commissioned in the Army, Navy and Public Health Service.

Because of the present national emergency, large numbers of recent graduates of medical schools have been employed to provide medical care for the growing armed forces of the nation. This trend has brought about an acute shortage of young physicians available for employment in the classified civil service. The medical functions of the Veterans Administration and other Government agencies, however, must go on both in peacetime and during a national emergency.

Inasmuch as it is inevitable that the ranks of medical officers already in the various Government agencies will be depleted by retirement of the older doctors and by entrance of the younger doctors into active military duty, an effort is being made to build up the staffs of these agencies with young physicians and recent graduates of medical schools who wish to make the Federal service a career. It is therefore necessary to bring to the attention of young physicians the opportunities which are afforded by such a career.

In the past, opportunities afforded by a medical career in the civil service have been obscure in the minds of the majority of the physicians in this country inasmuch as they have not been informed generally of the fields or branches of medical practice which are represented in the civil service. It is not generally known that a physician in the civil service may participate in any phase of medical activity, ranging from a rural practice to the most highly specialized fields.

It may be well to emphasize that not all civil service physicians are employed in large Government hospitals. On the contrary, a considerable number are engaged in the general practice of medicine, for example, those employed in the Indian Service of the Department of the Interior. The Indian Service, besides maintaining general hospitals and sanatoria ranging from 50 to 250 beds, has a very active outpatient department connected with its hospitals, and many of its physicians make home calls, make field trips, conduct school examinations, and administer general public health measures among the Indians.

Young physicians may be employed under civil service as far south as Panama and as far north as Alaska. In the Canal Zone, the young physician who is interested in tropical diseases may receive excellent opportunities to study that subject. Civilian physicians in the Canal Zone are appointed mainly for duty in dispensaries and for quarantine work. The dispensary work consists of general practice involving the attending of Government employees and their families, crews and passengers of vessels, etc. The work of quarantine physicians consists of quarantine and immigration inspection of crews and passengers on incoming vessels.

Positions in Alaska under the Indian Service will appeal to young physicians who have an adventurous spirit, as will positions in the Coast and Geodetic Survey, which afford an opportunity for young physicians to spend some time at sea on Coast and Geodetic Survey vessels. The task of physicians employed in Alaska under the Indian Service is a formidable one because of the climate and the remoteness of some of the villages. However, young physicians of robust health who go to that area have an opportunity to render a great service to humanity.

It is in the fields of general practice, tuberculosis, psychiatry, surgery and public health that the largest number of Federal medical officers are engaged. The opportunities for research in these and other fields of medicine are excellent. Because of the emphasis placed on career service by modern personnel administration, "in-service training" is playing an important part in the life of the young Government physician. In the Veterans Administration, "in-service training" affords opportunities for graduate study. The Veterans Administration operates a large tumor clinic at Hines, Ill., psychiatric clinics at its various hospitals, Chest surgery clinics at the tuberculosis hospitals, and at Mt. Alto Hospital, Washington, D. C., it conducts a heart research clinic. These clinics afford excellent teaching opportunities for young physicians.

At St. Elizabeths Hospital, Washington, D. C., fine opportunities for residencies and internships in neuropsychiatry are open to recent graduates of medical schools; these residencies and internships rank among the best in the United States. St. Elizabeths Hospital

is under the jurisdiction of the Federal Security Agency.

The functions of medical officers in the Food and Drug Administration of the Federal Security Agency have become of increasing importance since the passage of the Federal Food and Drug Act. Medical officers in the Food and Drug Administration are engaged in a critical review of the labelings of medicines in the light of their composition for the purpose of ascertaining whether or not the therapeutic representations are true or false as judged by a consensus of present-day medical opinion. This work offers excellent opportunities to recent graduates of medical schools who have had, in addition to their regular medical education, experience in pharmacology.

Also of increasing importance have been the medical functions of the Children's Bureau in the Department of Labor. The Child Hygiene Division of the Bureau carries on research and investigation involving fundamental technical medical study of the mental and physical condition of children in relation to heredity, environment, nutrition, and the efficacy of various methods of community health work. There are opportunities in this Bureau for young physicians with special training in pediatrics, obstetrics, or public health procedure, who are interested in extensive research study in connection with maternal and child health and services to crippled children.

In the Public Health Service, there are, in addition to the commissioned force, medical officers who are appointed under provisions of the Civil Service Act and rules. These medical officers are appointed as Acting Assistant Surgeons and are usually detailed for local duty in the vicinity in which they reside. From time to time, however, there is opportunity for them to transfer elsewhere. Acting Assistant Surgeons are employed in connection with practically all the activities of the Public Health Service. These include hospital and relief work, quarantine and immigration work, field investigations, and epidemic control duty. The Public Health Service operates marine hospitals and relief stations throughout the United States. The beneficiaries in these hospitals and relief stations consist principally of merchant seamen, officers and enlisted men of the United States Coast Guard and civil employees of the Federal Government injured in line of duty. A considerable number of Acting Assistant Surgeons are assigned to this work.

The services of Acting Assistant Surgeons are utilized at a large number of marine quarantine stations in connection with the inspection of vessels entering the United States from foreign ports, and in connection with the medical examination of aliens entering this country. There are opportunities in the Public Health Service for Acting Assistant Surgeons to conduct investigations pertaining to industrial hygiene, goiter, anthrax, influenza, malaria, pellagra, pneumonia, tuberculosis, typhoid fever, child hygiene and public health administration.

Medical officers are employed in various other Government agencies. Two medical officers in the Government Printing Office are in charge of a small well-equipped hospital in which employees who are injured or become ill while on duty are treated. The Bureau of Engraving and Printing requires the services of a physician for similar duty. The Census Bureau of the Department of Commerce employs physicians who engage in medical statistical study. In the Civil Service Commission a number of medical officers are engaged in medical activities pertaining to Government employment and disability retirement. This activity is a combination of insurance, industrial and administrative medicine and affords young physicians a basic training in these fields which is unique in the United States.

Inasmuch as the Veterans Administration employs more civil service physicians than any other Government agency, it might be well to discuss this agency more fully. The medical service of the Veterans Administration is comprised of regional offices, facilities and diagnostic centers. The term "facility" is applied to various types of field stations, including those which are hospitals only, those which may provide domiciliary care and hospitalization, others which are a combination of regional offices and hospitals, and still others which are a combination of regional offices and homes. Facilities may be primarily designed for general (medical and surgical) service, or for tuberculosis or neuropsychiatric service. However, some have a mixed service which may be a combination of any of the above services.

The diagnostic centers located at Washington, D. C., Hines, Ill., and San Francisco, Calif., were established for intensive study and observation of patients presenting diagnostic problems, and have consultant staffs consisting of physicians with national reputations in their fields. The diagnostic center at Hines, Ill., has one of the largest and most modern tumor clinics in the world.

Small clinics for thorough diagnosis and treatment of malignant growths are located strategically in facilities in New York City, Washington, D. C., Atlanta, Ga., Portland, Ore., and Los Angeles, Calif.

In nine facilities, scattered throughout the country, centers have been created for special chest surgery.

At the Veterans Administration, research is supervised by specially trained physicians on the staff of the Medical Director, and projects are entrusted to physicians having the basic specific qualifications to conduct them.

At the present time, the chances for early appointment of recent graduates of Class A medical schools who have served an approved internship are good in the Government service. Open continuous examinations have been announced by the Civil Service Commission to fill vacancies in the position of Associate Medical Officer. Physicians appointed to these positions in the Veterans Administration have excellent chances for promotion. If their records are satis-

factory, they may look forward with reasonable certainty to a step-up in grade and salary within the first two or three years of their service. The cardinal criterion for advancement in the Veterans Administration's medical service is demonstrated ability.

The matter of compensation for services rendered is an important item to consider in discussing opportunities for a medical career in the civil service. The majority of physicians are appointed in the Associate grade and receive a compensation of $3,200 a year minus a 3½ per cent deduction for retirement purposes. The opportunities offered for advancement to $4,600 and $5,600 a year are good, and many physicians who demonstrate that they have administrative ability in addition to a sound medical background may advance to $6,500 and $7,500 a year. A young physician should not expect to accumulate a fortune when choosing a medical career in the Government service; however, he can look forward to a lifetime of adequate remuneration for his service, satisfactory employment hours, and adequate annual and sick leave with pay. He will in addition receive disability and age retirement insurance at a very low rate.

The above items are important, but of course the most important consideration is the opportunity for which every physician is searching, that is, an opportunity to practice his profession and render efficient service to unfortunate human beings. The United States Government offers this career in medicine, surgery, public health, and other specialities which should be of interest to all recently qualified physicians.

Medical Annals of the District of Columbia
"Annual Scientific Assembly Number," Sept. 1941

A.M.A. JOURNAL WARNS PHYSICIANS NOT TO NEGLECT IMPORT OF DIETS

Declares That The Only Effective Answer of Profession to Diets Being Published In Magazines is to Plan Better Ones

Pointing out that recently published diets in many newspapers and magazines are in demand by the public because patients have had difficulty in obtaining them from the medical profession, *The Journal of the American Medical Association* for November 1 says that in the last analysis the only effective answer the physician can make to these diets is to plan and furnish better ones.

"On the street and particularly on the beach," *The Journal* says, "are visible the 'overweights.' In some countries obesity is considered a desirable attribute, but not in this country at this time. Recently, perhaps owing to the change to more revealing clothes, the American public has become 'figure conscious.' In every public conveyance, in newspapers and magazines and on many a daytime radio program the idea of 'the form divine' is hammered into our consciousness. Unquestionably Hollywood has exerted its influence in this regard through the heroines and glamor girls who exhibit their attributes to millions of fascinated eyes. To photograph well they must be thinner than they wish to appear. In years past 'Hollywood' reducing diets were promoted, the implication being that the Hollywood diet would produce a Hollywood figure. For the most part, these diets were unscientific; sometimes they were dangerous.

"Recently several magazines with a combined circulation of many millions have been publishing diets for reduction of weight. For the most part these diets furnish from 1,000 to 1,500 calories daily and have been planned by persons well trained in dietetics. What attitude should physicians assume toward these diets? Shall we say that the diets are unscientific or dangerous? That would not be true. Should we state that people should never follow a reducing diet without a physician's advice? The magazines themselves urge this. Or should the profession realize that one reason why such dietary suggestions are in demand is because patients have had difficulty in obtaining these diets from their physicians? How many physicians have neglected the importance of diet in the treatment of the patient? 'Doctor, I'm overweight. What would you suggest?' 'Oh, I'd cut down on the fats, starches and sweets.' Why shouldn't this patient welcome some real help from a magazine article? How much time is spent in the curriculum of the medical school in instructing students in the planning of diets?

"These recently published diets are not those of the dietary faddist. They do not contain the 'screw-ball' teachings of William Howard Hay or Bengamin Gayelord Hauser. In general, the diets are excellent. Some may not contain all the protein that they should, and many still require vitamin supplements. But the only good answer that a physician can make to one of these diets is his ability to plan a better one."

An elderly man with lung disease is labelled as "chronic bronchitis" by many practitioners. Bronchitis symptoms should receive further diagnosis. G. N. Meachen, M.D., Tubercle, Apr. 1941.

Whatever the outcome of the present war, we may be sure that disease will be the final victor, accounting for the largest number of victims and carrying on its deadly work long after the voice of the last gun has spoken. It has been said that the last war was exceptional in that for the first time the number of casualties from military action exceeded the number of victims of disease. That may have been true of certain armies during the period of hostilities, but it is emphatically not true when the victims of disease among civilians are taken into consideration. Every war produces conditions favoring the spread of disease, of which mass movements of population is one of the most important. In preparation for war the strength of armies is increased by recruits from villages and agricultural districts as well as cities. The former fall ready victims to such diseases as measles and mumps, meningococcic meningitis, and the pneumonias. Frank Boudreau, M.D., N. Y. State Jour. of Med., July 15, 1940.

Clinical-Pathological Conferences

J. J. Moore, M.D., Department Editor.

PRESENTATION OF CASES BY

W. Brams, M.D., and O. Saphir, M.D.

Michael Reese Hospital

CHICAGO

Case I

W. Brams: This patient, a male, aged 36, was first admitted on March 1, 1940 with a history of recurrent attacks of epilepsy during the past 18 years. He was in an institution three years previously for treatment of these attacks and for chronic alcoholism. He drank only beer in moderate amounts until five years ago. Since then he had consumed at least a pint of whiskey daily and, at times, as much as a gallon.

Examination revealed a coarse tremor of the hands and tenderness, on firm pressure, of the leg and thigh muscles. A diagnosis of grand mal, chronic alcoholism and mild peripheral neuritis was made.

He was readmitted eight months later with a history of cough and pain in the chest of two months' duration. About a pint of foul smelling mucopurulent sputum was brought up daily. He had lost about 25 lbs. during these two months. Tactile fremitus was found diminished at the left base of the chest posteriorly. Breath sounds were diminished and numerous crepitant rales were heard in this area and later bronchial breathing. The temperature was irregularly elevated and rose to 104° at times. Sulfathiazole caused subjective improvement and reduction in fever but no definite cure. Almost five weeks after this admission an abscess, near the root of the left lung, was seen on X-ray. This was confirmed by bronchoscopy, which disclosed pus welling up from the left lower bronchus. Postural drainage, bronchoscopic aspiration, sulfapyridine and supportive measures resulted in marked improvement.

The third admission was about 10 months later. The previous symptoms had recurred following a fresh "cold" five months before and the findings were the same as those of the second hospitalization with the addition that chest findings were now also present on the right and similar to those of the left side. Clubbing of the fingers had developed. Fever persisted, loss of weight continued and the general condition became worse. Bronchoscopy now showed foul pus exuding from the right main bronchus as well as from the left. The stools were found to contain entamoeba histolytica. The patient received carbarsone but without effect. Pain developed in the right chest and dullness and rales were present at the right base.

We are apparently dealing with a person who had had grand mal for many years and who, possibly because of inherent inferior mental constitution or unfortunate economic circumstances, had chosen to avoid life's difficulties by escape into the realm of alcoholic forgetfulness. Such a course of action by a poor man is likely to lead to undernourishment, inadequate vitamin intake with development of polyneuritis and to a state of markedly lowered resistance. An upper respiratory infection or ordinary pneumonia, which the average person could overcome, led to persistence of pneumonic infection with necrosis and abscess formation of the lungs in this debilitated individual. The history and findings on his second admission suggested the presence of an abscess in the left lower lung field, a suspicion amply confirmed by X-ray and by the observation on bronchoscopy of pus welling up from the left lower bronchus. Postural drainage, bronchoscopic aspiration, sulfapyridine and general supportive measures resulted in sufficient improvement to warrant the hope that the condition would clear up. This might have

happened in the usual patient but not in this very uncooperative person with evil habits, malnutrition and markedly lowered resistance.

The third admission, 10 months later, disclosed the presence of the same findings with spread to the opposite side. It will be of interest to determine the manner in which the abscess developed and spread to the opposite side and to evaluate the significance of the entamoebae histolytica in the stools, in relation to the lung abscesses. The sputum was not brownish as occurs when an amoebic liver abscess burrows through the diaphragm and penetrates into the lungs. Nor were amoebae found in the sputum either on ordinary examination or after bronchoscopic aspiration. This should be sufficient evidence to exclude pulmonary amoebiasis and the absence of diarrhea could point to the probability that we are dealing with a carrier rather than a patient with active amoebic ulceration of the bowel.

It is quite likely that the patient, during one of his sprees, became stuporous or that he vomited while under the influence of alcohol. It would be easy for him to aspirate gastric contents or injested material into his respiratory passages and for it to remain there until he recovered from his debauch. This together with malnutrition, exposure to the elements and lowered bodily resistance could easily result in pneumonia which would not run an ordinary course but would terminate in pulmonary suppuration. Bronchoscopy revealed that pus welled up from the left main bronchus, which means that paroxysms of coughing could spread purulent material throughout the bronchial tree. One could thus trace the persistence and spread of chronic pneumonia in the left lung, its spread to the opposite side and its conversion to suppuration with multiple abscess formation.

The diagnosis in this patient would then be:

1. Grand mal and chronic alcoholism with peripheral polyneuritis.

2. Pneumonia of the left lung, possibly from aspiration of vomitus.

3. Abscess formation with spread to other parts of the lung on the same and opposite sides because of the welling up of pus as seen on bronchoscopy. Chronic pneumonia and bronchiectasis would necessarily surround these abscesses.

4. Amoebiasis of the bowel, but the patient was probably a carrier rather than a patient with active open lesions in the intestinal tract.

O. Saphir: At the time of postmortem examination the body was that of a poorly nourished white male about 40 years old, weighing approximately 70 kg. The left pleural cavity was obliterated by dense adhesions. The right pleural cavity contained about 450 cc. of a yellowish thick liquid with flakes of fibrin. The heart was about normal in size and shape. The myocardium was soft and of boiled appearance. The aorta disclosed a minimum amount of arteriosclerosis. Both lungs were much heavier than normal, the left weighing 800 gm., the right 850 gm. On section the left lung presented many cavities, irregular in outline, but apparently lined by smooth dark red membrane. These cavities communicated with the bronchial tree and contained much foul smelling purulent material. Between the cavities there were many areas which were much firmer than the surrounding lung tissue, grayish white with dark streaks presenting a fibrillar appearance with no evidence of the normal lung architecture. Such areas were found throughout both lobes. There also were present many foci which were coarse, granular and much drier than the surrounding lung tissue. Multiple abscesses of various ages were also seen. The right upper lobe was air containing and only a few small, finely granular, dark grayish red areas were seen. The right lower lobe was much firmer than normal and on section presented a few cavities which were similar to those in the opposite lung. Many areas of consolidation, which again were finely granular and relatively dry, were noted. The trachea and bronchi contained much reddish yellow purulent material. The liver and kidneys showed severe cloudy swelling. There was acute splenic hyperplasia. The mucosa of the stomach was thrown into thick folds and was of cobblestone appearance. The remainder of the viscera and the intestinal tract presented no gross changes. The brain could not be examined.

The outstanding histological changes were found in the lungs. The left lung showed typi-

cal bronchiectatic cavities of varying ages, many of which were surrounded by old connective tissue fibers. There were many regions of completely organized pneumonia, other regions showing recent and organizing pneumonia. The right lung presented a recent confluent bronchopneumonia. No amoebae could be demonstrated in the inflammatory exudate within the lung. There was a typical chronic gastritis.

COMMENT

This case is typical of bronchopneumonia with many of its well known complications. The changes in the lung started apparently two months before the first admission when the patient gave a history of cough and pain in the chest. At that time he apparently contracted his first pneumonia which probably was located in the left lung. The pneumonic exudate did not resolve but became organized. The organizing pneumonia eventually led to the process of carnification which was present throughout the left lung. Perhaps because of the ensuing fibrosis, bronchiectasis developed. This was very extensive but particularly pronounced in the left lung. Also many abscesses were found, some of which were encapsulated. These were more commonly encountered in the left lung. The obliterative pleuritis would correspond in age to the carnification of the lung. Thus the patient showed evidence of the common complications of pneumonia, namely pleuritis, organizing and organized pneumonia, carnification, abscess formation and bronchiectasis. The patient eventually developed severe confluent bronchopneumonia in the right lung, from which he died. There was no evidence of colitis. Thus the presence of amoebae in the stools implies that the patient was an amoebae carrier.

Case II

W. Brams: This 62 year old female patient complained of headache and dizzy spells for 12 years and was brought to the hospital for study. Examination revealed ventricular extrasystoles, accentuated aortic second sound and blood pressure of 195/95. A hard mass was found in the right upper quadrant of the abdomen. An attempt to catheterize the right ureter failed because of the presence of a right ureterocele. The left ureter was patent throughout and excretion of indigo carmine from the left side was apparently normal. The urine contained a trace of albumen and a few RBC and WBC. The erythrocyte count and hemoglobin were normal, moderate leukocytosis was present and blood NPN and creatinine were within the normal range. Roentgenological examination of the chest disclosed no evidence of metastatic or other abnormalities. Right nephrectomy was performed without difficulty and the patient was returned from the operating room in good condition. Following operation the blood pressure fell to 115/45 and slowly rose, reaching 155/60, eight days later. Examination of the removed kidney showed the presence of pyelonephritic scars and adenocarcinoma. Fever and evidences of pneumonia appeared about three days after operation and the patient's condition gradually became worse until she died 14 days after nephrectomy. It is interesting to note that the patient complained of persistent, severe abdominal pain several days after operation, together with vomiting and distention of the abdomen. Enemas were returned clear or contained some small fecal particles but offered no distinct relief.

The report by the pathologist that the surgically removed kidney was the site of a primary adenocarcinoma disclosed the nature of the tumor found on physical examination. The additional finding of pyelonephritic scars may indicate that the hypertension was on the basis of chronic pyelonephritis. One can suspect that the ventricular extrasystoles were caused by myocardial degeneration due to long standing hypertension and coronary sclerosis.

More important is the cause of death after nephrectomy. There was adequate evidence of postoperative pneumonia and this could result in abdominal distention and discomfort but could hardly account for persistent vomiting and obstipation. The combination of severe and persistent abdominal pain, frequent vomiting and persistent meteorism, together with some constipation speaks rather for some form of ileus. Certainly this would be suspected in the average patient who had had no recent nephrectomy. The fact that flatus was passed and that small amounts of feces could, occasionally, be obtained after an enema, speaks against ileus. It is possible however that the intestinal obstruction was incomplete and that the site was near the middle of the intestinal tract. Obstruction high up in the intestinal tract would produce

shock and more severe vomiting and the patient could hardly survive for 14 days. Obstruction low down should result in complete obstipation. Involvement near the middle, particularly if the lumen of the bowel were not completely occluded, could permit accumulation of sufficient amounts of debris, secretion and bacteria distal to the obstruction to provide some fecal contents after an enema and would not result in shock and the fulminant course so usual in high intestinal obstruction.

The clinical diagnosis would then be:

1. Chronic pyelonephritis, hypertension, coronary sclerosis, myocardial degeneration.

2. Adenocarcinoma of the kidney.

3. Postoperative pneumonia and incomplete ileus near the middle of the intestinal tract.

O. Saphir: At the time of postmortem examination the body was somewhat obese, weighing 68 kg. The recent healed right renal incision showed no evidence of secondary infection. There was also present an old healed lower midline scar. On opening the abdominal cavity 500 cc. of bloody fluid were found. The peritoneal surfaces contained a small amount of fibrin. Old firm adhesions were encountered, extending from the left broad ligament to the mesosigmoid bordering a hiatus through which approximately 60 cm. of ileum and its mesentery had herniated. The incarcerated portions of the ileum were purplish black, apparently necrotic and covered with fibrin. The heart weighed 350 gm. The valvular apparatus was intact. Throughout the posterior wall of the left and right ventricles the myocardium was replaced by a large area of yellow necrotic tissue. Numerous calcific occlusions were found in many branches of the coronary arteries. The right coronary artery at a distance of 2 cm. from its origin showed an organizing grayish white thrombus. The lungs showed no gross changes of note. The liver and spleen showed evidence of chronic passive hyperemia. The right kidney was absent. The surface of the left kidney was finely granular and red. The left tube and ovary were absent. The remaining viscera showed no changes.

The tumor in the kidney proved to be an adenocarcinoma with clear cells. There were no metastases found at autopsy.

COMMENT

The patient apparently had had an arterial hypertension for quite some time, the anatomic entity of which was the arteriolosclerosis of the left kidney as seen at the postmortem examination. The fall of the blood pressure, as the result of the operation (anesthesia?) was perhaps a contributing factor in the formation of the thrombus in the right coronary artery, which resulted in the infarction of the posterior wall of the right and left ventricles. The infarct as seen at autopsy was a few days old. The strangulation of the intestines was apparently due to their incarceration within a recess produced by the fibrous adhesions which had resulted from the old pelvic operation.

FEDERAL WARRANTS ARE ISSUED FOR THE BRINKLEYS

Under the heading, "Alas, Poor Yorrick! I Knew Him, Horatio," *The Journal of the American Medical Association* for October 11 says:

"On September 22 Mrs. John R. Brinkley was arrested in Kansas City on a fugitive warrant based on a Little Rock, Ark., charge of using the mails to defraud. A similar warrant for 'Dr.' John R. Brinkley was also carried by the deputy United States marshal, but the physician in attendance on 'Dr.' Brinkley said that his condition would not permit the warrant to be served. A telegram had been received from the district attorney at Little Rock, Ark., requesting the arrest of the Brinkleys on charges of sending fraudulent promotional materials through the mails. The physician of 'Dr.' Brinkley requested a delay because the leg of 'Dr.' Brinkley had been amputated in the Research Hospital in Kansas City on August 23 and it was reported that he 'suffered a severe heart attack September 2.' It is reported that Mrs. Brinkley stated the bond would be made returnable in Little Rock, where an answer would be made to the fraud charges. Incidentally, it was stated in the complaint that 'Dr. Brinkley had treated some 16,000 persons at a fee of $750 each or a total of $12,000,000' and that the Brinkleys had represented 'to certain persons and to others generally' that 'Dr.' Brinkley 'had found a substance which would restore to normal sex vigor weak men and women' and that this and other claims alleged to have been made for the treatment 'were false and fraudulent and the United States mails were used to promote this fraud.' Another principal charge in the indictment was that the defendants 'did falsely pretend that John R. Brinkley was a great surgeon, scientist, and physician, that he, while visiting medical centers in Europe, had found a real substance which when properly administered would restore to normal sexual vigor sexually weak men and women.' The Brinkley hospitals at Little Rock have been closed, and several months ago 'Dr.' Brinkley filed a voluntary petition in bankruptcy in San Antonio, Texas."

News of the State

PERSONALS · COMING EVENTS · MARRIAGES · DEATHS

Governor Dwight H. Green announced the appointment on November 7th of 5 members of the Advisory Board to the Department of Public Health. Dr. Clifford U. Collins of Peoria was reappointed to the Board. The four new members are: Robert S. Berghoff, R. W. McNealy, James H. Hutton all of Chicago and Walter Stevenson of Quincy.

Members of this Board have received the following letter from the Honorable C. Wayland Brooks, Committee on Appropriations, United States Senate — "It made me very happy when I learned that you had been appointed as a member of the Board of Public Health Advisers in the Department of Public Health.

"Our mutual friend, the Governor, has surely made a wise choice in naming you because I know that your efforts will always reflect credit upon his Administration.

"My heartiest congratulations and every good wish go to you.

"If at any time I can be helpful or of service to you or your friends you must never hesitate to call upon me. With every kind personal regard."

COMING MEETINGS

The Robert Sonnenschein Study Group for Medical History announces a lecture by Dr. Armo B. Luckhardt, Professor of Physiology at the University of Chicago, on "Doctor William Beaumont and the Medical Epic of the Northwest Territory" December 10, 1941 at 8:00 P. M. in the Rothchild Amphitheatre of Michael Reese Hospital.

The Fourth Annual Forum on Allergy will be held this year in the Statler Hotel, Detroit, Michigan, on January 10th and 11th, 1942. The second award of THE FORUM'S Gold Medal for outstanding contributions to clinical allergy will be made this year to W. W. Duke, M. D. of Kansas City, Missouri, who well may be called "the father" of this subject. Illinois men on the program are: Rudolph Hecht, Chicago; Samuel Feinberg, Chicago; Leon Unger, Chicago; Ralph Mills, Decatur. Physicians desiring a program or further information may address the Director, Dr. Jonathan Forman, 956 Bryden Road, Columbus, Ohio.

SUCCESS OF SUMMER ROUND-UP IN ILLINOIS

Mrs. Leonard H. Graf, Summer Round-Up Chairman of the Illinois Congress of Parents and Teachers has recently submitted to her Board her Annual Report of the work accomplished during the spring, summer and fall of 1940.

This report is most enlightening and is of special interest to the medical profession of the state. Mrs. Graf states, "The objecive for the Summer Round-Up for the past year has been to arouse the interest of parents in improving the health of children entering school for the first time and to bring about continuous medical and dental supervision of all ages, including the apparently healthy.

"In the 1940 campaign Illinois rated second in the number of Congress Units registering for the Summer Round-Up Campaign. In Illinois 469 units carried through the campaign, 11,800 children were examined in Illinois and 55.6% of the children referred to their family physician, consulted him. — "Once again, I believe for the fifth year now, Illinois has been first in the nation in the number of defects corrected."

County medical societies and individual doc-

tors of the state have cooperated with the Parent Teacher Associations of Illinois in making such a report possible and it is highly gratifying to see such fine results.

Mrs. Graf in closing her report states "The state chairman wishes to express her sincere appreciation for the faithful services, and assistance given by the local and council and district Summer Round-Up chairmen as well as many of our directors and other board members in *cooperation with our local, district and State Medical, Dental and Nursing Professions."*

MARRIAGES

DAVID O. N. LINDBERG, Decatur, Ill., to Miss M. Helen Gray of Ann Arbor, Mich., recently.

MORRIS WILBURNE, Chicago, to Miss Shirley Winters of New York, October 25th.

JOHN H. SHAMEL, Ashkum, Ill., to Miss Frances Lee Richeson of Chillicothe, Mo., at Canton, Mo., August 10th.

DONALD O. MANSHARDT, Chicago, to Miss Betty Schilling of Bippus, Ind., at LaPorte, Ind., September 6th.

DEATHS

GEORGE FRANCIS BRACKEN, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; served during the World War; aged 63; died, October 23.

ALBERT D. CHRISTIAN, Ottawa, Ill.; Northwestern University Medical School, Chicago, 1893; member of the Illinois State Medical Society; aged 73; died, October 20, in Mesa, Ariz., of injuries received when struck by an automobile.

GEORGE RUSSELL CURL, Chicago; Eclectic Medical College, Cincinnati, 1910; member of the Illinois State Medical Society; served during the World War; aged 57; formerly on the staff of the Veterans Administration Facility, Hines, where he died, October 8, of cerebral hemorrhage.

WILLIAM L. DOEPP, Homewood, Ill.; Chicago Medical College, 1887; member of the Illinois State Medical Society; formerly school physician; aged 77; died, October 23, in Rockford of cerebral arteriosclerosis.

GEORGE MICHAEL FITZGERALD, Chicago; University of Illinois College of Medicine, Chicago, 1915; member of the Illinois State Medical Society; served during the World War; aged 50; died, September 29, of cerebral hemorrhage.

GEORGE WASHINGTON HALL, Chicago; Rush Medical College, Chicago, 1893; Chairman of the Section on Nervous and Mental Diseases of the American Medical Association, 1929-1930; at one time vice president of the American Medical Golfing Association; instructor in laryngology and diseases of the chest from 1895 to 1901, instructor in materia medica and therapeutics, 1902, instructor in medicine from 1903 to 1905, assistant professor from 1906 to 1910, associate professor of nervous and mental diseases from 1911 to 1924 and clinical professor of neurology since 1925 at his alma mater; member of the American Neurological Association and the Association for Research in Nervous and Mental Diseases; past president of the Central Neuropsychiatric Association; fellow of the American College of Physicians; attending physician, Cook County Hospital, from 1908 to 1912 and attending neurologist from 1913 to 1926; on the staff of the Cook County Psychopathic Hospital from 1918 to 1930; attending neurologist, St. Luke's Hospital since 1916; aged 72; died, October 25, of coronary thrombosis, while attending the meeting of the Central Neuropsychiatric Association in Detroit.

GEORGE STEPHENSON HENDERSON, Holcomb, Ill.; College of Physicians and Surgeons of Chicago, 1895; member of Ills. State Medical Society, past president Ogle County Medical Society; Died, November 4, aged 76, in Swedish American Hospital, Rockford, of coronary thrombosis.

ALFRED FREDERICK JACOBSON, Chicago; Northwestern University Medical School, Chicago, 1905; in 1907 clinical assistant, in 1923 instructor and in 1925 associate in the department of dermatology at his alma mater; was associated with the city health department continuously since 1907, at which time he had the title of school inspector and since 1909 field health officer; aged 61; died, October 3, of carcinoma.

JOSEPH CARL KIMBALL, Joliet, Ill.; Northwestern University Medical School, Chicago, 1908; aged 58; was killed, September 26, in an automobile accident.

EDWARD GILBERT TROWBRIDGE, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1897; aged 86; died, September 29, in the Evanston (Ill.) Hospital of arteriosclerosis, and auricular fibrillation.

ANTON LISKA, Chicago; Jenner Medical College, Chicago, 1909; aged 71; died, September 21, of cerebral hemorrhage.

JOHN TERRENCE MILLER, Decatur, Ill.; Medical College of the State of South Carolina, Charleston, 1896; on the staffs of the Decatur and Macon County Hospital and the City Public Hospital; aged 69; died, September 23, in St. Mary's Hospital of lymphatic leukemia.

IRVIN JOHN PASCOE, Park Ridge, Ill.; Chicago College of Medicine and Surgery, 1910; member of the Illinois State Medical Society; served during the World War; health officer; on the staff of the Walther Memorial Hospital, Chicago; aged 56; died, October 19, of coronary thrombosis.

EMILY H. SELBY, Chicago; Harvey Medical College, Chicago, 1901; aged 80; died, September 9, in the Presbyterian Hospital.

FREDERICK CONRAD SCHURMEIER, Elgin, Ill.; Rush Medical College, Chicago, 1902; past president of the Kane County Medical Society; fellow of the American College of Surgeons; served as a member and president of the board of education; city physician from 1905 to 1907; member of the board of trustees of the Kane County Springbrook Sanitarium, Aurora; attending surgeon, Sherman and St. Joseph's hospitals; aged 69; died, October 6, of coronary thrombosis.

WALTER W. VOIGHT, Chicago; Christian-Albrechts-Universität Medizinische Fakultät, Kiel, Prussia, 1904; fellow of the American College of Surgeons; attending gynecologist, St. Joseph Hospital; aged 62; died, October 25, of coronary thrombosis.

ENVELOP METHOD OF TREATING BURNS AND WOUNDS DEVELOPED

British Navy Surgeon Devises a Covering Of Watertight Silk Which Eliminates The Need of Changing Dressings

An envelop method of treating burns and wounds, introduced by Surgeon Lieutenant Commander John Bunyan, of the British navy, is described in the September 27 issue of *The Journal of the American Medical Association* by its regular London, England, correspondent. Commander Bunyan has developed a watertight silk envelop which is placed over the involved portion of the body.

"The envelop is provided with an inlet and an outlet, so that a lesion of any part may be irrigated by inserting a glass nozzle," the correspondent reports. "A simple adhesive seal is fixed to the proximal end of the envelop at the factory, so that by removing the protective gauze one produces a watertight seal by lightly pressing the adhesive to the limb and covering with an adhesive bandage."

Explaining the need for an improved method of treating burns and wounds, *The Journal* correspondent says that Commander Bunyan "holds that in the past success has been diminished by destructive antiseptics, by frequently changed dressings, painful to remove and destructive of adherent newly formed tissue, and by immobility and disuse of the part. A dressing which does not require changing is therefore desirable. It should be flexible, frictionless, bland to the tissues and transparent, so that progress may be observed. With the help of a manufacturer, envelops of coated silk, shaped for different parts of the body, were produced. For cleansing Bunyan uses a solution of electrolytic sodium hypochlorite, because it is the least irritant.

"So far the treatment has been mainly used for burns. Applied to a first degree burn the solution immediately relieves pain, and covering with adhesive plaster is all that is necessary. Second and third degree burns are washed with the solution, the envelop is applied and the solution is run through the envelop through the outlet. This irrigation is repeated three times a day. Good results from this method are reported from the Middlesex, King's College and London hospitals. . . ."

It is pointed out that the great value of envelop irrigation is that in no case treated by it, with or without cleansing in the operating room, will anything more than mild infection occur.

DO YOU KNOW

That tularemia or rabbit fever was an obscure and unrecognized disease prior to 1908? That it received its name from Tulare county, California, when Dr. George W. McCoy conducted an investigation of diseased ground squirrels and discovered the germ causing the disease?

That ticks are responsible for the spread of the disease among animals?

That tularemia is an acute infectious disease caused by Bacterium tularense and that it occurs in over twenty kinds of wild life and especially in wild rabbits and hares?

That human beings become infected by the contact of bare hands with the raw flesh and the blood of infected animals or by the bites of bloodsucking ticks and flies which have fed on such animals?

That symptoms of the disease include fever, chills, sweating, headache, vomiting, indefinite body uneasiness and prostration?

That you should be on the lookout for symptoms which are characteristic of these elusive fevers, that you should support ever legitimate agency working for their eradication and that you should consult your physician promptly if any of your family develops any of their symptoms.